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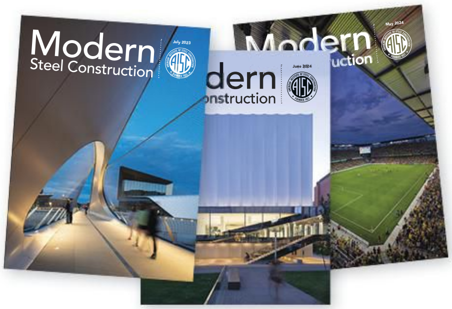

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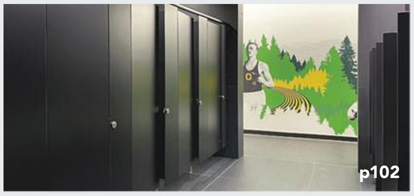

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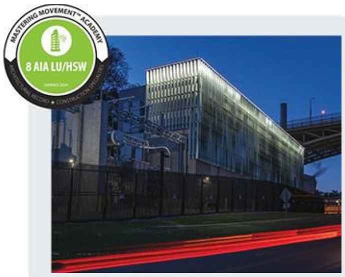

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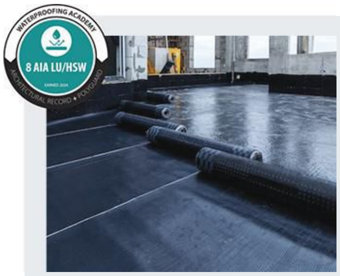

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A Time for Reflection

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AS WE WERE preparing to ship this issue to the printer in early January, the city of Los Angeles erupted in flames. At press time, we could only be sure of the immense devastation, with new blazes igniting and no fully adequate infrastructure for containment. Despite the frequency of wildfires in that part of the country, it was immediately evident that this was different—the kind of inferno that could potentially alter the city forever, like the Great Chicago Fire of 1871, which killed hundreds and destroyed over 17,000 structures.

Part of the reason that fire spread so flagrantly in Chicago was the ubiquity of balloon framing in the city, a construction method pioneered there in the 1830s and one that is still very much in use in the U.S. today. At the time of the disaster, Chicago had minimal fire-safety codes. It had no schools of architecture and only a handful of architects who could train apprentices. Yet, as Carl W. Condit noted in *The Chicago School of Architecture* (1964), “in little more than a decade after the fire they invented and mastered the modern technique of riveted steel framing and were thus able to develop the office building, hotel, and apartment block as we know them today.” Advances in the use of terra-cotta as a fireproof cladding method also followed. Firefighting capacity was expanded, new building codes implemented, and Chicago emerged as one of the country’s most modern and prosperous urban spaces.

The story now is quite the opposite, with a vast network of international architects, engineers, urban planners, landscape architects, building scientists, and material experts at the ready to come to L.A.’s aid. But, as Alberto Martínez García writes in “Erasure, Reconstruction, and Standardization” (page 39), a Forum piece this month about postwar cities—the apocalyptic scenes in Los Angeles can be likened to that of a war zone—“As a result of global trends, technologies, and standards, many contemporary approaches to postwar city-building have the potential to eliminate local building traditions and regional architectural variation.”

The loss of entire city blocks and neighborhoods—at press time, an area larger than the entire city of San Francisco singed off the map—spurs a strong desire to immediately rebuild in Los Angeles. But how to do so should be seriously considered in a region where requisite conditions—blustery winds and regular drought—could easily cause this to happen again. We can no longer build, or, frankly, exist, according to old standards. As Chicago adapted, so we too must now. But the depth of disciplinary advancement and its data-based understanding of climate science has yet to truly inform policy and governance.

As we watch this crisis unfold, there are stories of the miraculous endurance of certain buildings, like a timber-clad Passive House in Pacific Palisades or an earthquake-proof stone-and-stucco Malibu residence, both of those the sole piles left standing among charred neighbors. Will we heed the lessons these survivors might teach us? What other models exist out there, and what areas of research remain untapped? Will the prevalent use of dimensional lumber give way to less fire-prone materials and methods in construction? How, if at all, will this catastrophe change the building culture?

Architects often play a limited role in the immediate aftermath of a disaster—the urgencies are safety, food, temporary shelter, and social support. The most exigent need of all is beyond the purview of architects but affects them greatly: a forthright and mandatory government program to combat climate change. Without it, architects are creating ephemera, and the timelessness of architecture—long a goal of its best practitioners—is questionable.

Josephine Minutillo, Editor in Chief

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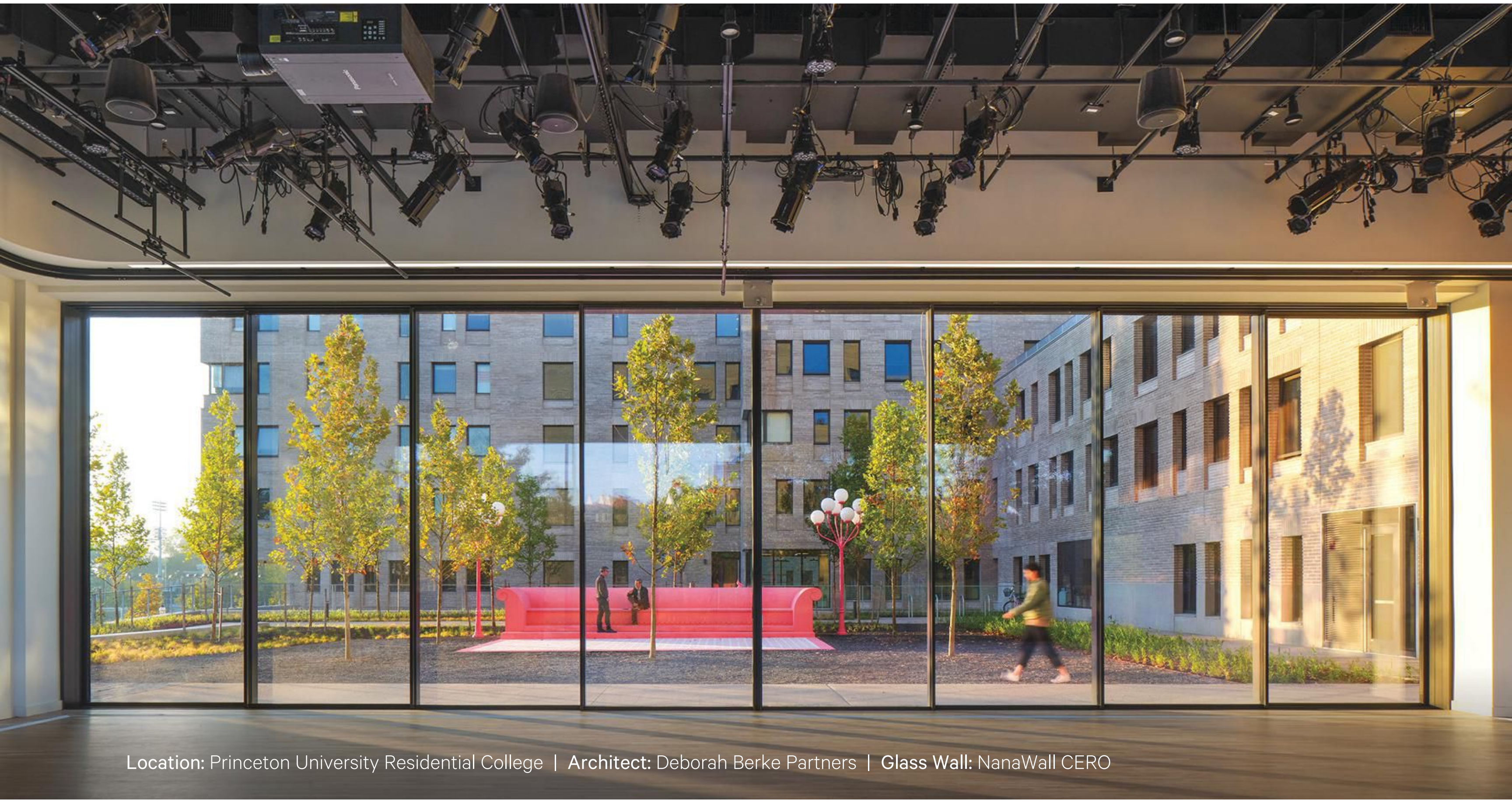

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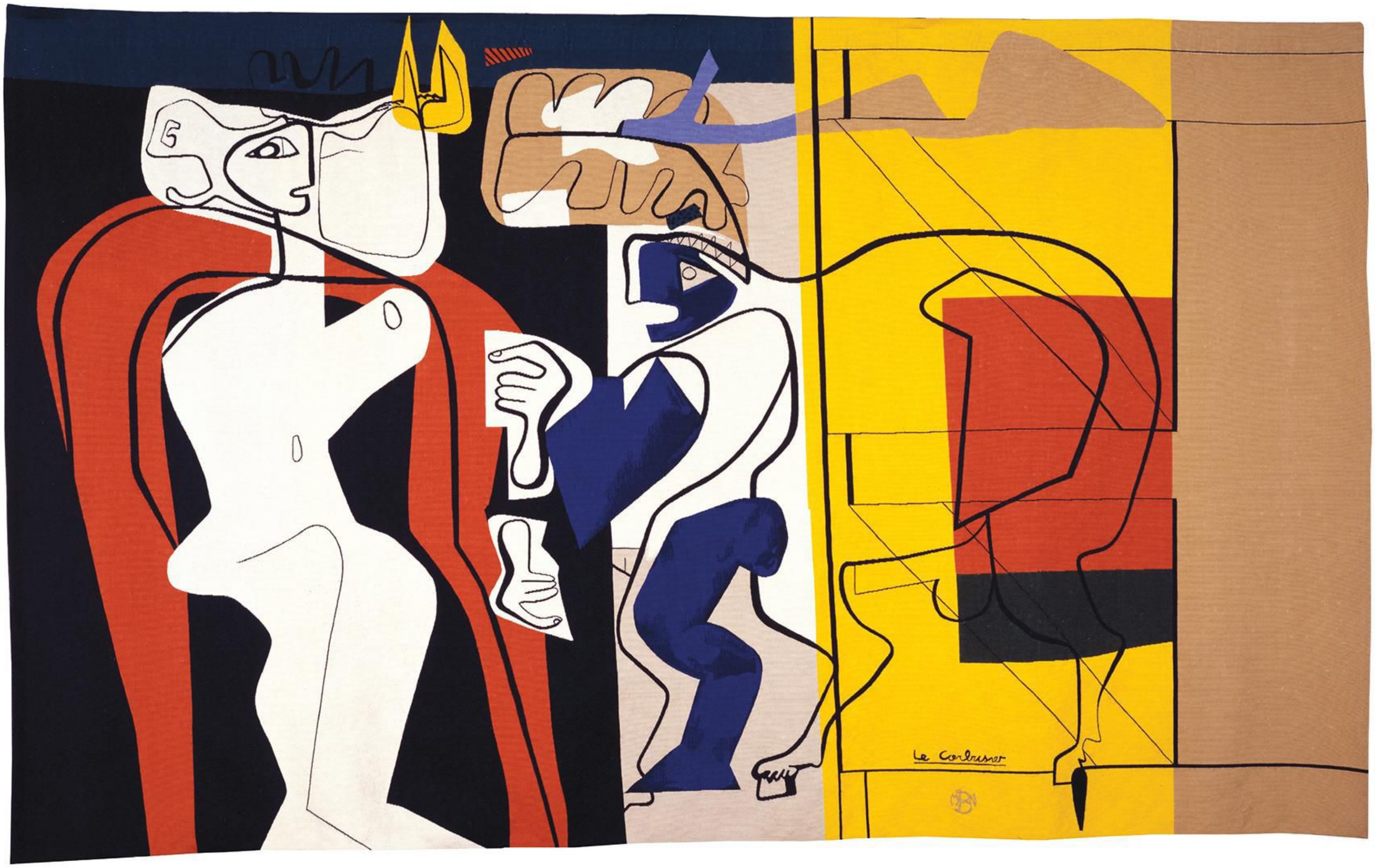

An exhibition on view through March 9 at the Clark Art Institute in Williamstown, Massachusetts, explores hanging fabrics from the 1940s to the present day. *Wall Power! Modern French Tapestry from the Mobilier national, Paris* includes works by the likes of Joan Miró, Henri Matisse, Sonia Delaunay, and Kiki Smith. Also featured prominently is Le Corbusier, who believed that tapestry could add visual interest, through texture, color, and line, to otherwise spare surroundings and assist with acoustics. He invented the term "muralnomad" for the art form, corresponding to his concept of the nature of modern life—in which people moved homes frequently—intending for these works to be easily "detached, rolled, carried under one's arm, and hung elsewhere," in the manner of tapestries of old. *La femme et la maréchal ferrant* (pictured) was designed by Le Corbusier in 1958 and woven in 1967, after his death.

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Unprecedented Los Angeles Wildfires Claim Numerous Architectural Treasures and Historic Landmarks

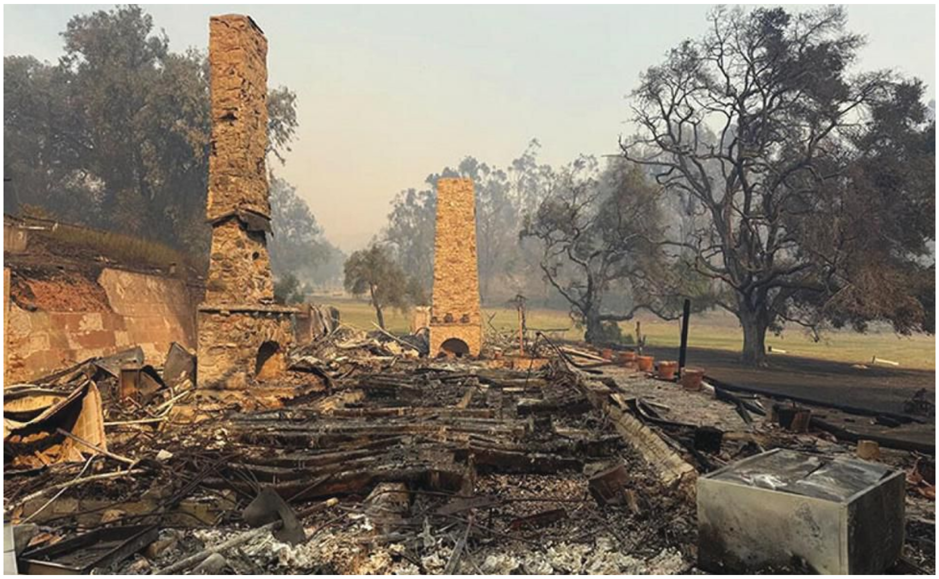
BY MATT HICKMAN

AS OF THIS WRITING, a series of unprecedented wildfires continues to rage in and around Los Angeles. Five days after the initial outbreak in the Santa Monica Mountains, the two largest of the wind-whipped blazes, the 23,700-acre Palisades fire and the 14,100-acre Eaton fire are slowing but are at under 60 percent containment, while more than 170,000 residents remain under evacuation order or warning. With a small army of firefighters racing to tame a rolling catastrophe exacerbated by exceptional dry conditions, the situation is ever-shifting and extremely dangerous.

The losses, so far, are staggering. At least 25 deaths have been attributed to the wildfires. Entire neighborhoods have been obliterated, leaving thousands of Angelenos displaced. Civic anchors—churches, synagogues, schools, libraries, parks, theaters—and beloved, long-established businesses have been reduced to rubble. The destruction of architecturally significant sites, ranging from landmarked vestiges of Old Hollywood to dramatically sited Modernist masterworks, is also profound. Most of the confirmed losses—and close calls—have occurred within the coastal neighborhood of Pacific Palisades on L.A.'s Westside and in Altadena, a diverse, flourishing community in the San Gabriel Valley.

As the Palisades fire began its rampage on January 7, early reporting on imperiled works of architecture largely focused on those close calls: a Charles Moore–designed Episcopalian church, the National Historic Landmark–listed home-studio of Charles and Ray Eames, and the Getty Villa, an antiquities-displaying museum modeled after a 1st-century Roman country house, were all spared by the inferno (but remain under active threat).

As the smoke began to clear, we learned that other historic structures in Pacific Palisades and on the eastern edge of Malibu—an area not unfamiliar with the destructive wrath of wildfires—had been lost. Anchoring a state-run historic park, the 31-room former ranch house of vaudeville performer turned early-Hollywood star Will Rogers was reduced to ruins. Nearby, along the Pacific Coast Highway, another slice of 1920s L.A. was erased with the loss of the Topanga Ranch Motel, a long-abandoned bungalow-style motor court built by William Randolph Hearst that had been slated for revitalization.



The former L.A. ranch of entertainer Will Rogers, now a state historic park, was leveled by fire.

PHOTOGRAPHY: COURTESY CALIFORNIA STATE PARKS

While none of the extant L.A.-area houses emerging from Arts & Architecture magazine's Case Study House program have been confirmed as destroyed at press time, preservation nonprofit the Los Angeles Conservancy has listed the Freedman House, a 1949 Pacific Palisades residence designed by Case Study House luminary Richard Neutra, as a loss. The Keeler House (1991), a daringly cantilevered dwelling designed by late Southern California Institute of Architecture cofounder Ray Kappe, was also leveled by the Palisades fire.

Roughly 40 miles to the northeast, in historic-architecture-rich Altadena, the Eaton fire similarly did not discriminate between modern architecture and landmark buildings from an earlier era. Multiple dwellings were lost within Park Planned Homes, a 28-house tract conceived in the late 1940s by architect and social-housing pioneer Gregory Ain with landscape architect Garrett Eckbo, one of the first Modernist housing developments in the United States. Directly abutting Park Planned Homes, one of Altadena's finest Arts and Crafts–style mansions, Scripps Hall (1904), listed in the National Register of Historic Places, was destroyed along with the rest of what was currently an educational campus operated by the Pasadena Waldorf School.

Just down the road at 396 East Mariposa Street, a Mediterranean Revival–style house that debuted in 1907—the first fire-resistant residence in Altadena, ironically—also succumbed to flames. Designed by Pasadena architects Myron Hunt and Elmer Grey, the house was best known as the former residence of popular-fiction author Zane Grey, who purchased the property from Chicago business magnate Arthur H. Woodward in 1920 and lived there until his death in 1939. The house, added to the National Register of Historic Places in 2002, was built from reinforced concrete, at the insistence of Woodward's wife, a survivor of the Iroquois Theater Fire of 1903. Blocks away, another historic Altadena landmark, a grand Queen Anne manse built for Irish-born map-publishing tycoon Andrew McNally, in 1887, was also razed.

These buildings represent just a small sampling of culturally significant works of architecture threatened by and lost to the devastating, climate change–fueled L.A. wildfires. "While the full extent of the destruction to historic places caused by these fires is yet to be seen, we are reminded of how important it is to be there for one another as a community," the L.A. Conservancy writes. "It reminds us all what places and spaces mean to us, especially once they are gone." ■

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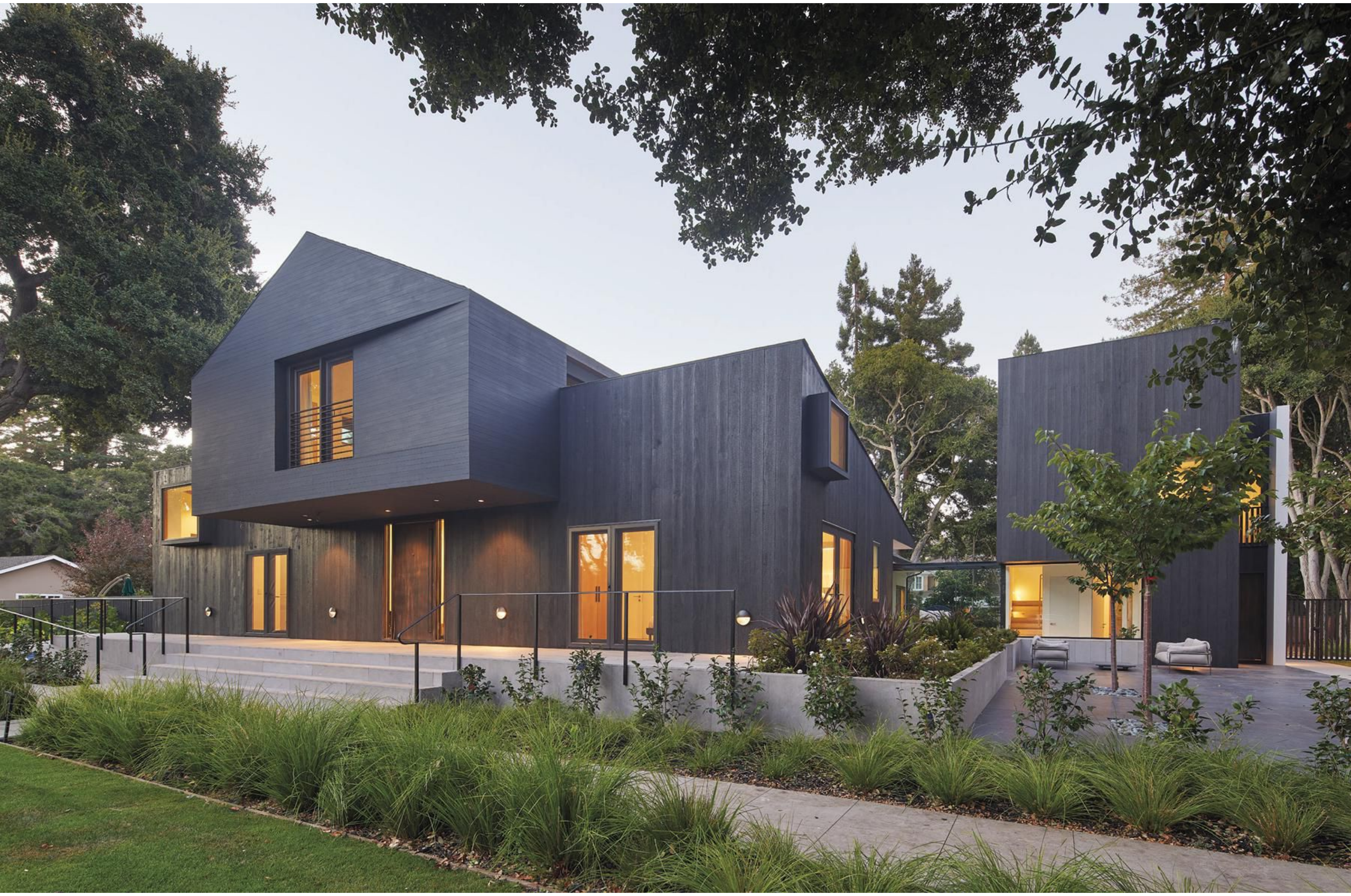
BUILDING VALUE SINCE 1906

HOUSE of the Month

SPIEGEL AIHARA WORKSHOP NIPS, TUCKS, AND EXPANDS A TRADITIONAL HOUSE IN CALIFORNIA'S BAY AREA. **BY CLARE JACOBSON**



A cantilevering gable end announces the main entrance of Complex.

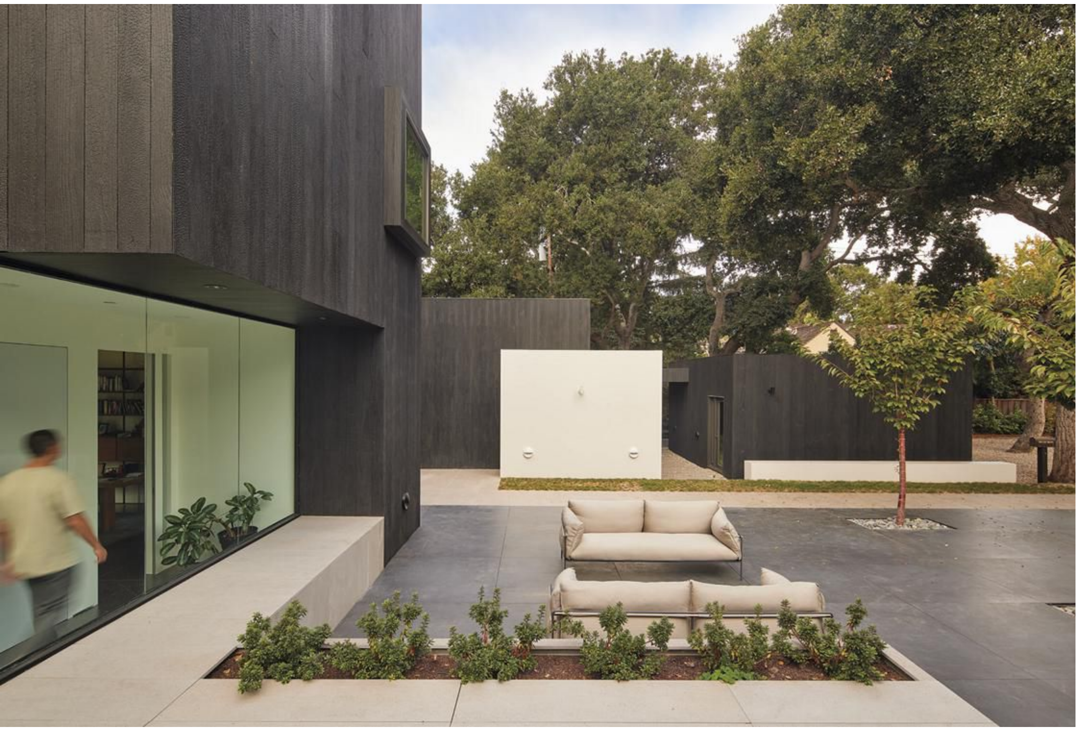
PHOTOGRAPHY: © BRUCE DAMONTE

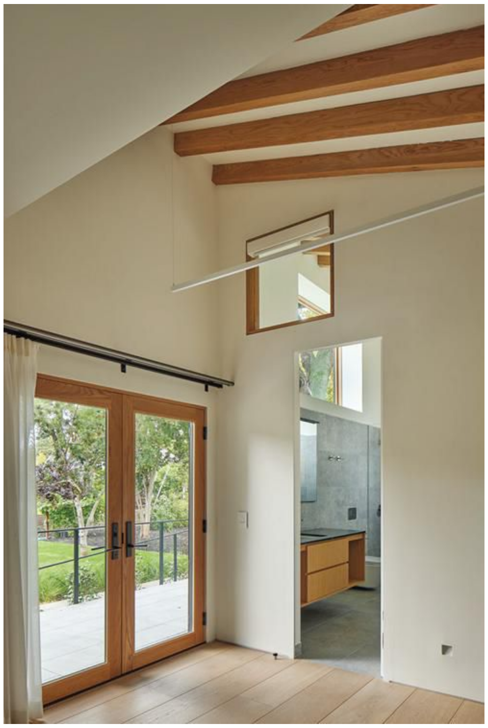
A NEW PROJECT by Spiegel Aihara Workshop (SAW) is rightfully named Complex. SAW began working on the seemingly simple renovation of a 1934 house in tony Atherton, in California's Silicon Valley, in 2018. Over five years, the job's scope expanded to intervening on the existing house and garage more extensively, and constructing a new guesthouse tower, another guesthouse, and a pool house, totaling some 6,935 square feet. "We like the double meaning of *complex*," says Dan Spiegel, cofounding partner with Megumi Aihara of SAW, a San Francisco–based architecture, landscape, and urban design firm and 2019 Design Vanguard firm. "We used to call the project 'Developing a Complex,' because it started as one thing and then led to another and another and another."

Surprisingly, SAW's work at the site began as a subtraction—cutting into the main house. The owners, a couple who moved to California from Spain, thought the residence lacked a front, so SAW removed the entry porch and chopped into existing overlapping pitched roofs to create a more formidable facade with a cantilevering gable end, without overstepping the property's setback.

The new front walls feature oversize doors and windows that SAW inherited—the clients had begun the project with a different team and already purchased the fenestration to use in its design. Spiegel says that, when SAW took over the job, "we had to figure out new ways to arrange all these existing materials, which was actually a fun challenge." A slanted indentation highlights one reused door above the main entrance. It complements the many interesting angles produced by slicing into the pitched roofs.

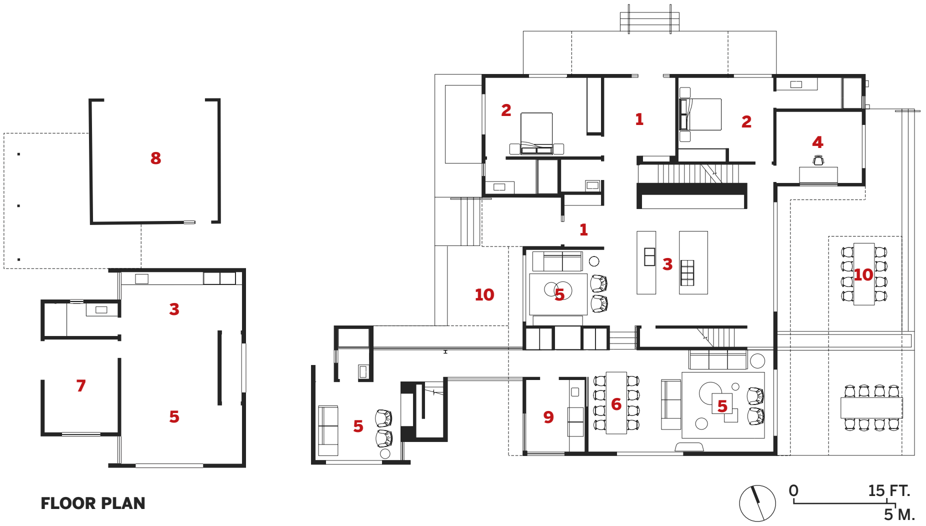
When the pandemic nudged the owners' children home in 2021, the renovation project morphed from subtraction to addition. Rather than tuck new bedrooms and offices into, or tack them onto, the main residence, SAW added accessory buildings; this started with a three-story tower for the teenage kids and continued from there. The site plan evolved into a villagelike composition of singular structures surrounding a communal square. "There's a logic of aggregation," Spiegel says, "a language that we've established, a way that things fit together, and a maximum bulkiness that we were willing to have in the project."



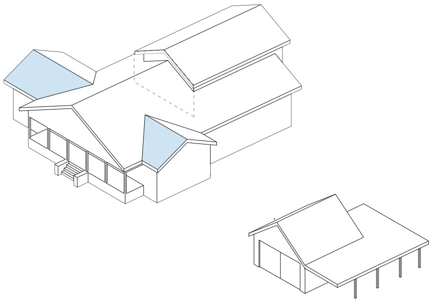


Daylight filters through rafters (opposite), and interior windows connect spaces (above, right). Walls and off-axis circulation preserve privacy (above).

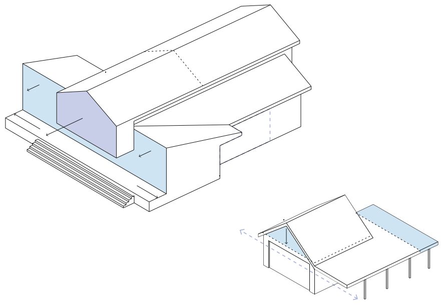
1 VESTIBULE
2 BEDROOM
3 KITCHEN
4 OFFICE
5 LIVING
6 DINING
7 STORAGE
8 GARAGE
9 LAUNDRY
10 PATIO



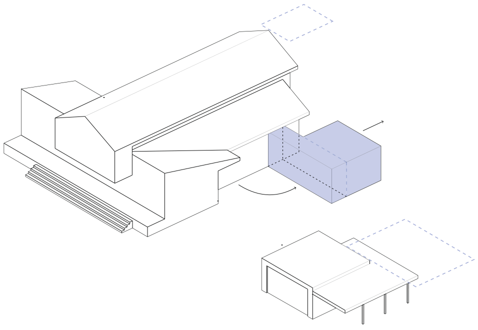
FLOOR PLAN



ORIGINAL HOUSE



CREATING A NEW FRONT

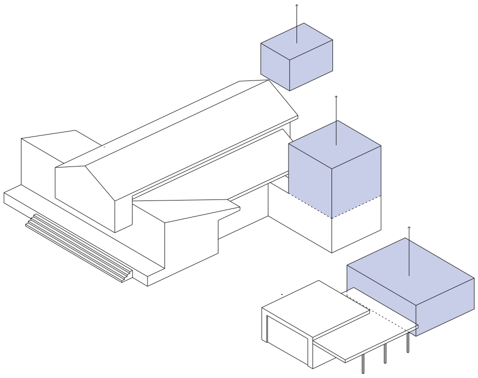


ADDING TO THE HOUSE

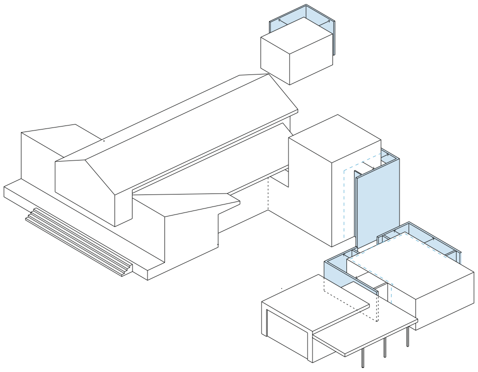
A consistent palette of refined cladding helps unify the work. Modified Monterey pine appears in two charred finishes; Spiegel mentions the Japanese *shou sugi ban* burnt-wood technique that informed this. SAW chose gray slate shingles for both their fire retarding qualities and their beauty. White ultracompact porcelain panels were influenced by the sensibility of the Spanish owners. On sunny days, they catch the shadows of the property's oak trees.

SAW saved numerous mature oaks in the front and back yards and a magnolia near the pool as part of its landscape plan, overseen by Aihara. New plantings are integrated with the old and were chosen to flower and fruit throughout Northern California's mild seasons. Spiegel says, "We wanted it to be so that even in the middle of winter, there was quite a bit of color around."

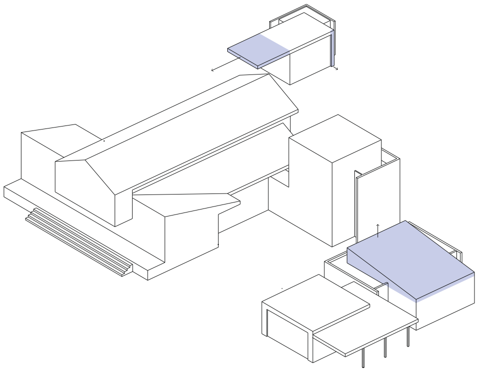
The landscaping helped SAW to unify the *complex* interiors. High windows throughout the project focus views into the branches while maintaining privacy, even in the pool house's sauna. "You share the same landscape references without seeing one another," Spiegel says. Interior windows and wall cut-



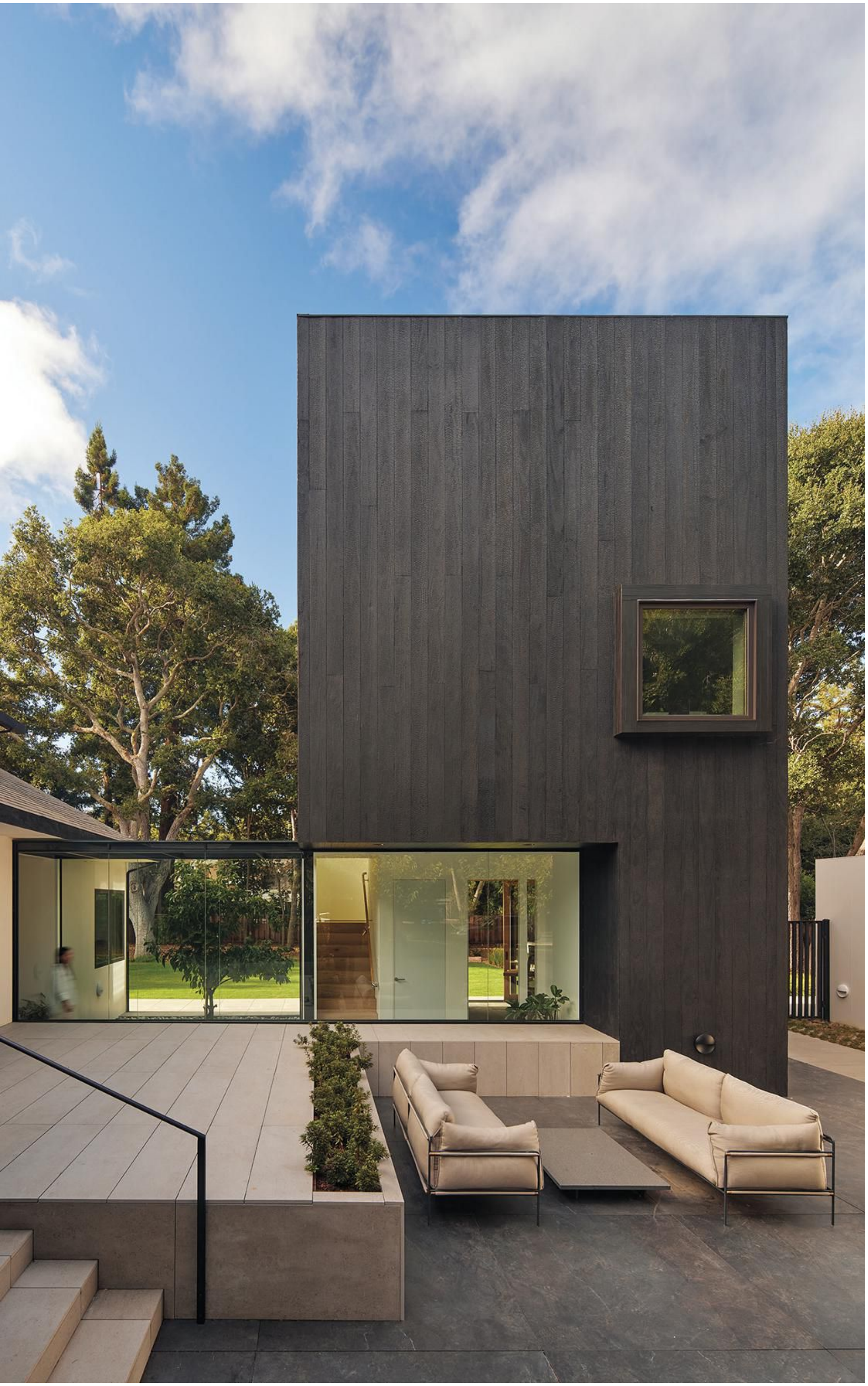
NEW OUTBUILDINGS



INCREASING PRIVACY



SHADE AND LIGHT



A glazed walkway connects the main house to its tower addition.

outs offer surprising vistas from room to room—again, integrating the design.

In fact, surprising details everywhere are the real joy of the project. Two light monitors disguised as chimneys illuminate hallways in the main building. A glass-enclosed walkway connects a lounge to the guesthouse tower. A diffused skylight over exposed beams brings a soft glow to the other guesthouse.

Some of the surprises—like a tapering bathroom counter in the tower and a trapezoidal window in the guesthouse—seem introduced to reflect the faceted forms produced by cutting into the main building. It is as if the complexities of Complex were not enough, and SAW needed to create an even bigger challenge for itself.

Spiegel admits his delight in the experimentation that residential work allows, especially with a willing client. He notes the many models—both physical and virtual—that SAW depended on to make angles, sight lines, setbacks, lighting, inherited doors and windows, and all the rest work together. But ultimately the measure of the project is experiential rather than logical. Whether sitting under the east-facing terrace or standing on the tower's balcony, there is a united feel to the place, one of an irregular but coherent family compound. And in this sense, Complex is simply successful. ■

Clare Jacobson is a San Francisco–based design writer and editor.

Credits

ARCHITECT: Spiegel Aihara Workshop — Dan Spiegel, Megumi Aihara, principals; Jeremy Ferguson, project lead; Sharon Ling

ENGINEERS: La Rosa Engineering (structural); Murray Engineers (geotechnical); Macleod and Associates (civil)

CONSULTANT: Kielty Arborist Services

GENERAL CONTRACTOR: Enrique Flores

CLIENT: withheld

SIZE: 6,935 square feet

COST: withheld

COMPLETION DATE: October 2023

Sources

CLADDING: Delta Millworks (accoya); Cosentino (panels); California Slate Company (shingles)

WINDOWS/DOORS: Marvin, Oldani Studio

SKYLIGHTS: Velux, Kalwall

LIGHTING: Halo, Flos, Artemide

INTERIOR FINISHES: Porcelanosa (tile); Boen (flooring); Portola (paint); Boffi Kitchens

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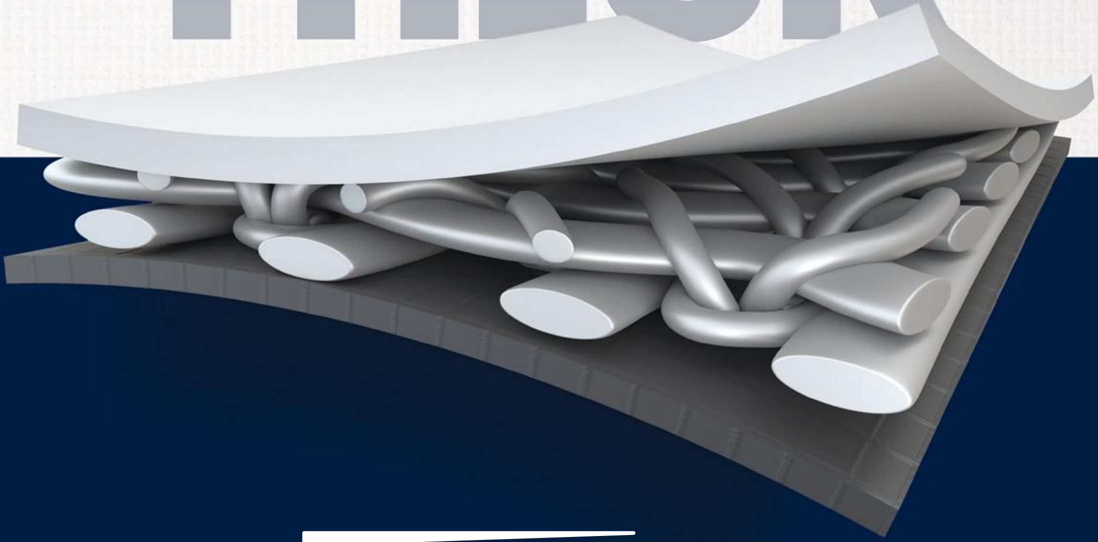

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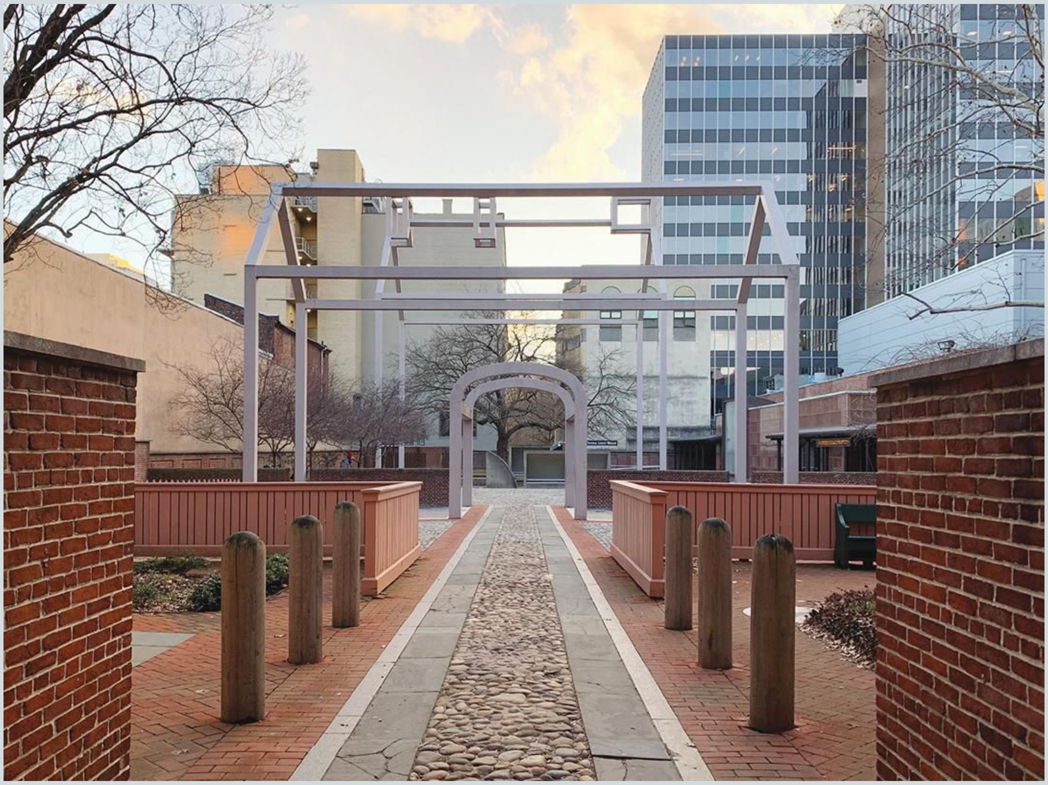

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Anne Whiston Spirn
Professor of Landscape Architecture and Planning, MIT

Chris Hardy
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Merritt Bucholz
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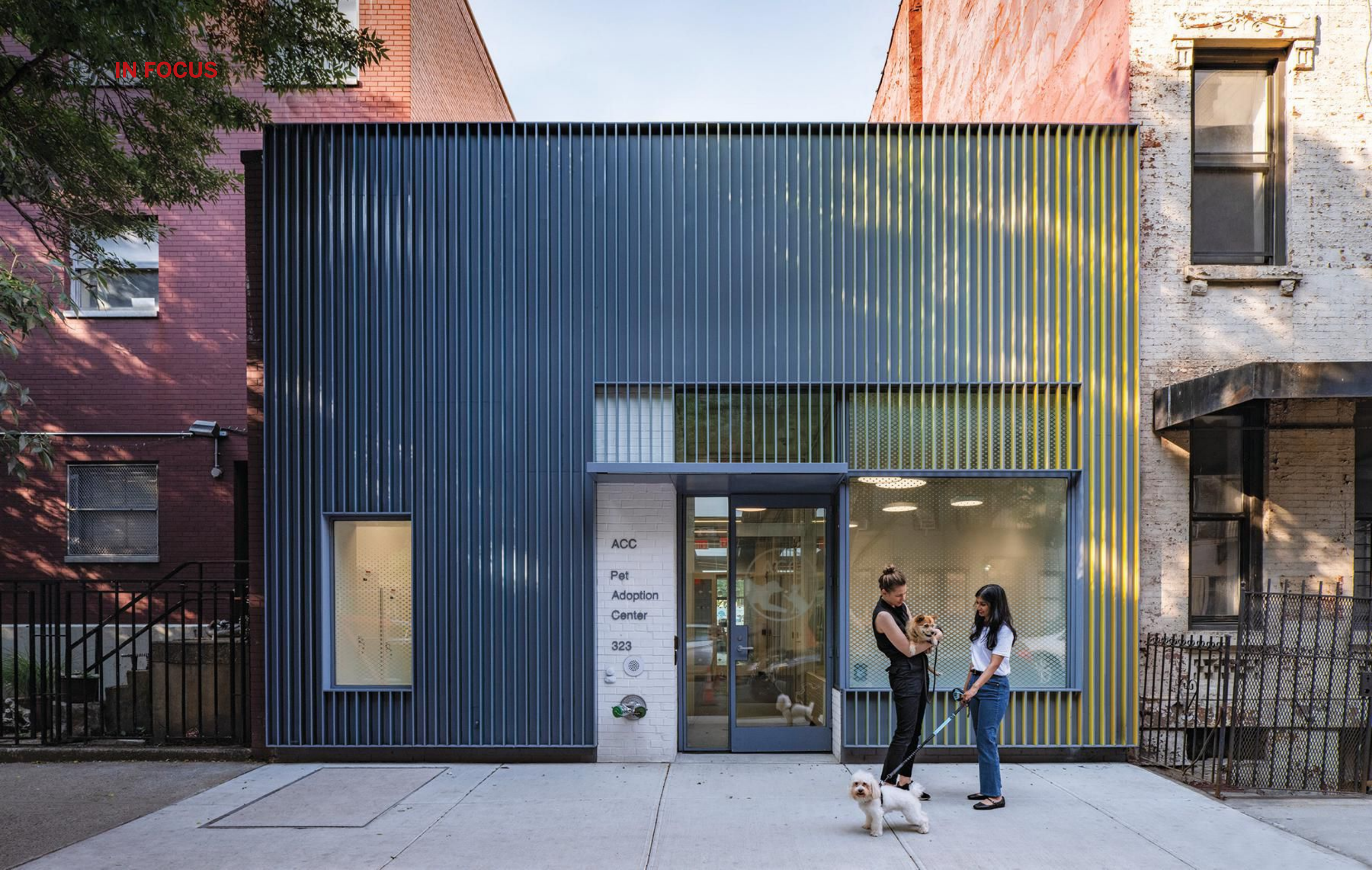


Creature Comfort

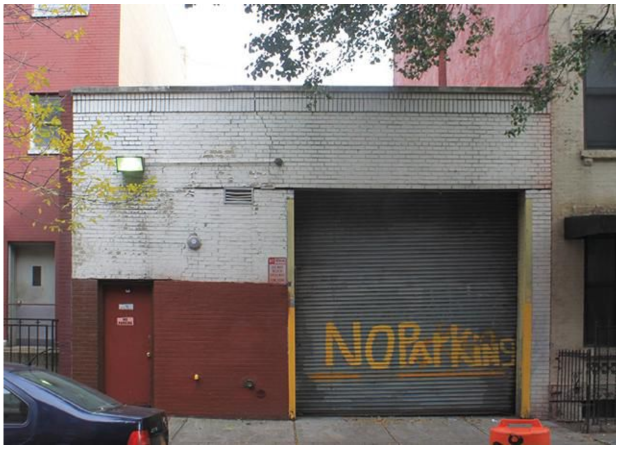
Studio Joseph transforms a former garage into an outpost of New York's largest animal shelter.

BY PANSY SCHULMAN

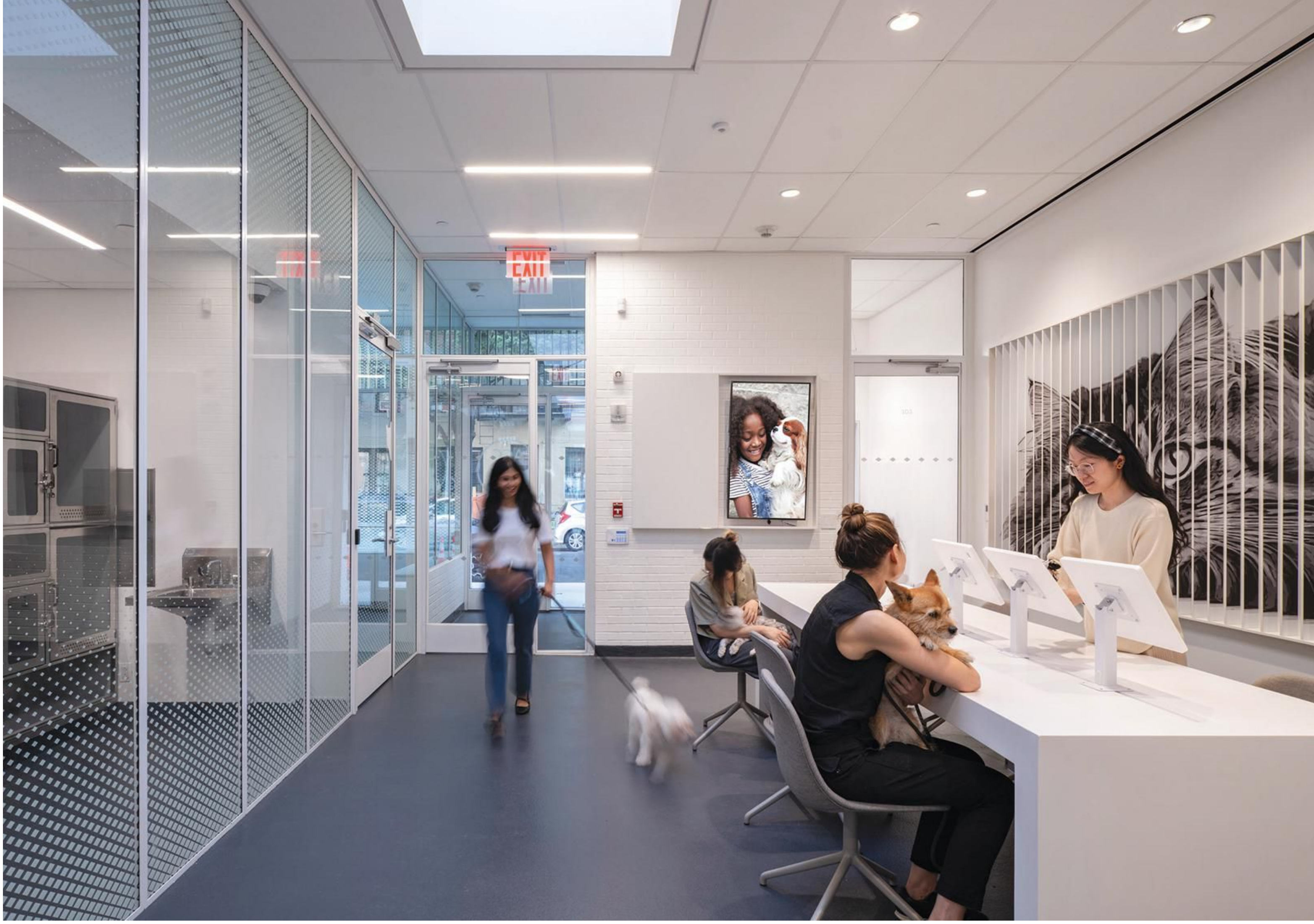
A QUIET BLOCK in Manhattan's East Harlem neighborhood lined with understated residential walk-ups is an unlikely place to encounter an attention-grabbing kaleidoscope of color. But on East 109th Street, between First and Second avenues, what was once a shabby garage from the 1930s has been transformed into an eye-catching landmark for the neighborhood. The steel rainscreen that now shields the existing masonry is painted to create a lenticular effect, appearing blue-gray when encountered head-on. But alter your viewing angle, and it shifts from yellow and cool green to deep blue and purple and back again. This chromatic play offers little clue to what's inside: a 2,500-square-foot pet-adoption outpost operated by the Animal Care Centers of New York (ACC), the city's largest animal shelter.

Opened in October one block south of ACC's bulky and imposing Manhattan headquarters, the center was designed by New York–based Studio Joseph. According to firm principal Wendy Evans Joseph, the nearly century-old garage was in bad shape, its wood roof structure damaged and concrete-slab floor cracked. The design team considered tearing it down entirely, but the existing square footage was adequate for the ACC's needs and the organization wanted to be a good neighbor.

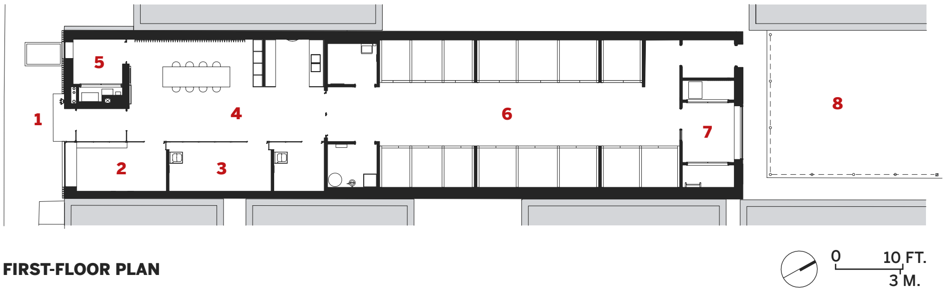
Studio Joseph's plans kept as much of the original structure as possible, bracing the original wood beams and working within the building's brick envelope. The two garage doors at the front and back were transformed into glass-fronted entryways, and the adjacent doors became windows for the respective dog and cat meet-and-greet rooms—housed at



The 1939-built former garage (above), and the existing masonry covered by a brightly painted steel rainscreen (top).



The feline quarters adjoin the reception area, which cultivates a welcoming atmosphere with a communal table and a playful mural.



FIRST-FLOOR PLAN

1 ENTRYWAY
2 CAT COLONY
3 CAT KENNELS
4 RECEPTION
5 CAT MEET AND GREET
6 DOG KENNELS
7 DOG MEET AND GREET
8 SERVICE COURTYARD

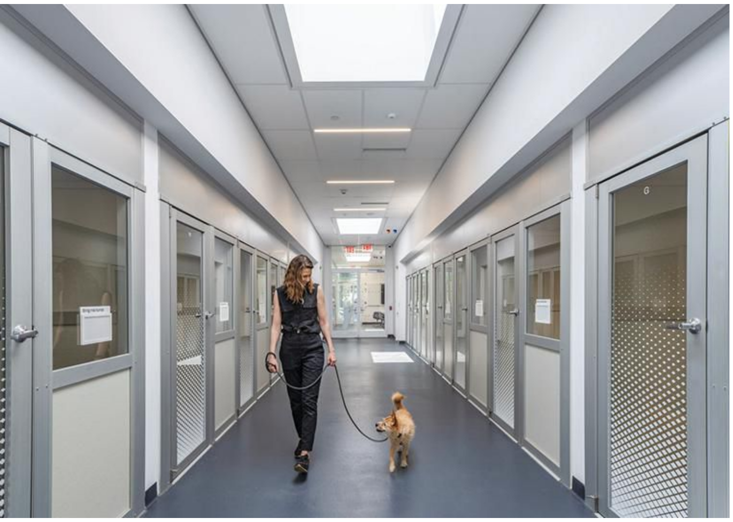
either end of the building to avoid unpleasant interspecies encounters. The two original skylights, which run the length of the building, were preserved and embraced as the center's spine of circulation, creating a more pleasant environment for both human and animal guests than the fluorescent-lit and cramped interiors of the nearby headquarters. "Bringing daylight into both the lobby and the kennel area gives the animals a sense of night and day," says Joseph. "It's very healthy for them and lends them a calmer spirit."

The bulk of Studio Joseph's work is dedicated to cultural projects, and this background informed the project's statement-making facade and its warm interior atmosphere. A large rectangular reception desk greeting potential adopters stretches along the length of the lobby space. Above it is a large mural, also designed by Studio Joseph, that mirrors the effect of the facade, portraying a dog when seen from one angle and a cat from another.

The front half of the building is dedicated to cats, which have a street-facing "condo" room for play and socialization and an adjacent kennel room with individual habitats that can accommodate up to 28 felines. The center's 15 dog kennels, home to its noisier inhabitants, lie through a door beyond the lobby. To avoid aggression between the hounds, Studio Joseph developed a special frit for the glass kennel doors, in consultation with animal-behavior specialists from the ACC. Its diamond pattern becomes denser at the lower reaches, preventing the animals from seeing each other from across the narrow corridor, while allowing humans to look in from above. This overlay is also present on all street-facing windows, letting the cats in the colony observe the outside world while maintaining privacy.

The need for a happy environment for animals—and a welcoming one for visitors—was challenged by the technical nature of the project. "It was almost like doing a medical

PHOTOGRAPHY: © ALEX FRADKIN



Animal-facing glazing is adorned with a specially designed frit, which becomes denser at the lower reaches.

facility," says Joseph. "Everything has a highly specialized purpose." The building's bulky mechanicals, needed to maintain air quality and an extensive hose system, are hidden in a drop ceiling. Further balance had to be struck between health and safety standards for both animals and humans. For instance, the concrete floors, which contain drains for easy cleaning, needed enough grit to prevent humans from slipping when wet but not so much that it would hurt the animals' paws.

The fetching new adoption center addresses a larger need for the organization. Its contract with the city mandates that it accept every and any animal brought in—dogs and cats, but also guinea pigs, rabbits, injured wildlife, and confiscated exotic pets. With three full-service locations, in Manhattan, Brooklyn, and Staten Island, the ACC takes in an average of 5,000 dogs and 10,000 cats annually. During the pandemic, as household budgets tightened and the city's housing crisis deepened, intake increased so dramatically that it threw the organization into crisis. In the summer of 2023, ACC, for the first time in its history, announced it had run out of space and was closed for surrenders. Its 109th Street outpost is part of a larger plan that addresses the organization's space crisis; it will include new facilities in Queens and the Bronx as well as the renovation of existing care centers.

According to an ACC staff member, animals are moving through the new center at a much faster rate than in the main facility, the average length of stay being about 14 days, as opposed to 20. While more ambitious long-term plans come to fruition, this relatively modest intervention, working within the constraints of an existing structure and a tight urban site, offers a compelling and budget-friendly prototype for future facilities, balancing function and comfort for all creatures, great and small. ■

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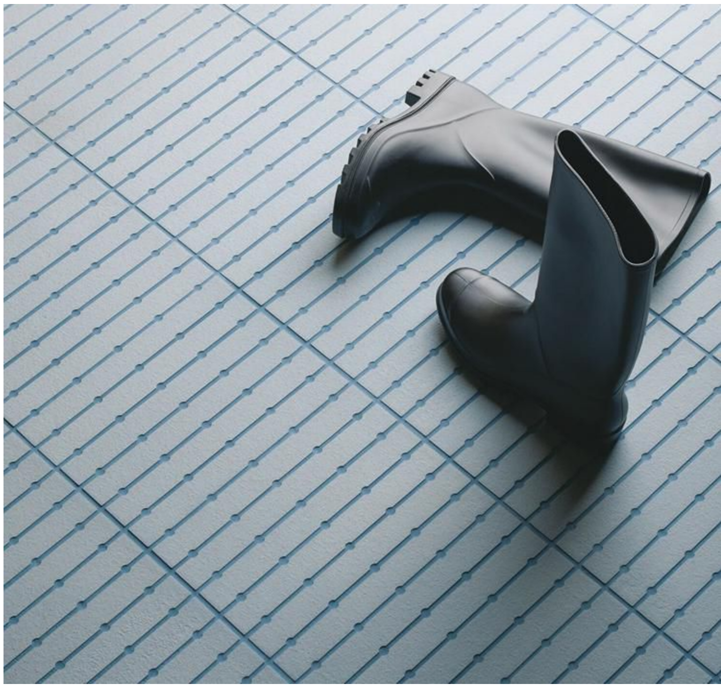
Boost Expression

Atlas Concorde's new porcelain-tile collection, designed in collaboration with architect Elisa Ossino, features 10 nature-inspired tones, including Camel (pictured). The textural surface faithfully reproduces the irregularities of concrete. Large-format floor tiles are available with patented Sensitech technology that ensures easy maintenance as well as high slip resistance.
atlasconcorde.com

Modular ONE

New colors and patterns from Parador's resilient-flooring system are now available in the U.S., including a herringbone wood look (pictured). Made in Germany with 98.5% natural materials, the collection emulates the beauty of stone and wood while remaining easy to install and keep up. The three-layer design features a polypropylene coating for durability, a recycled core for stability, and cork backing for acoustics and comfort, while its plasticizer-free composition supports indoor air quality.
parador.de



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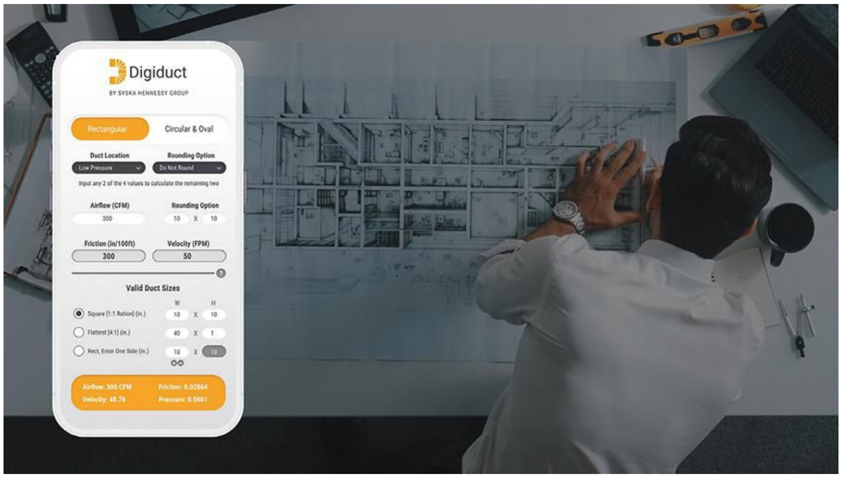

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Friction (in/100ft): 300
Velocity (FPM): 50
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○ Flattest [4:1] (in.) 40 x 1
○ Rect, Enter One Side (in.) 10 x 10
Airflow: 300 CFM
Friction: 0.02864
Velocity: 48.76
Pressure: 0.0001

Duct-Sizing Calculator App

Developed by global engineering firm Syska Hennessy Group, this free-to-download app, initially launched as "the Ductulator," takes the guesswork out of ductwork sizing by enabling users to accurately calculate the optimal friction loss and air-flow velocity for HVAC systems in design. Based on equations and recommendations published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the app, which is available on both the Apple App Store and Google Play, ensures precision and energy efficiency.

syska.com

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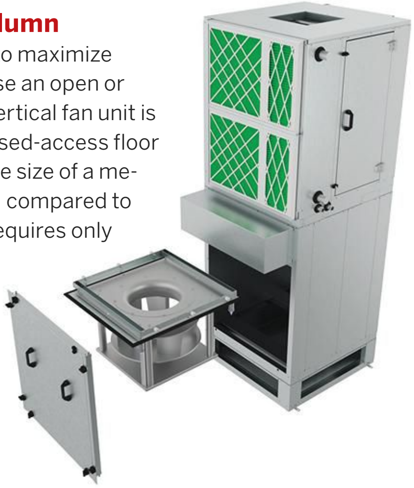

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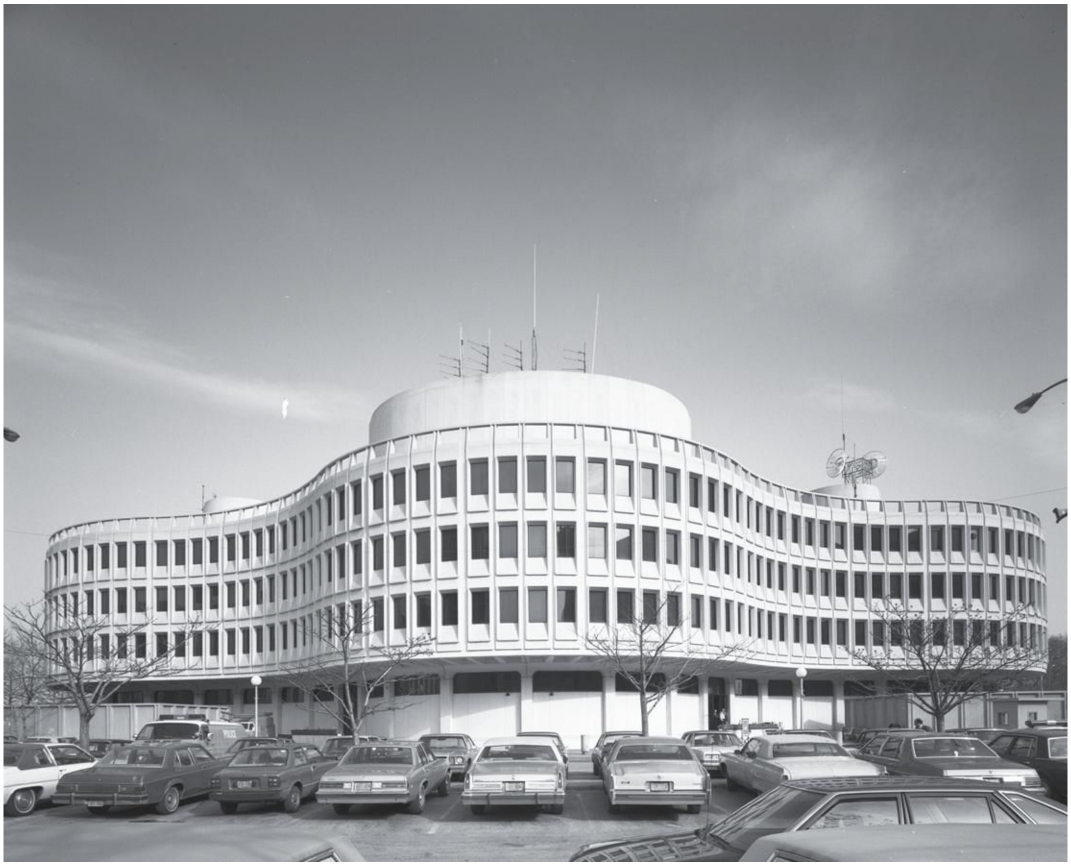
Save the Roundhouse?

While Philadelphia preservationists fight to adapt and reuse this former police headquarters, **Diana Lind** argues for a clean slate.



Completed in 1962, the building is a prime example of Philadelphia school Modernism, and among the first in the United States to expertly utilize precast concrete.

PHOTOGRAPHY: © PETER OLSON. COURTESY THE OLSON COLLECTION/ATHENAEUM OF PHILADELPHIA

"WHEN A TRAVELER sees a tree-filled square with hundreds of men reclining on park benches or lined up for soup and salvation across the street, then he has arrived in Philadelphia." Such was a 1952 description of Franklin Square, then Philadelphia's Skid Row. Just about a decade later, the Roundhouse, the city's police headquarters, designed by Geddes Brecher Qualls Cunningham (GBQC), would open across the street, with the express purpose of taming the park's chaos. One block away, Metropolitan Hospital, another undulating building, opened in 1971 as the city's charity hospital. As Philadelphia fought against white flight and the decline of manufacturing, this neighborhood served residents seen as less desirable.

It is hard to imagine this history when you stand in Franklin Square nowadays. You'll hear the lilt of a carousel, the music from the miniature golf course, or the cheerful screams of children on the playground. One of William Penn's original five squares, this public space is once again vibrant. But the effects of the prison and hospital, along with the nearby highway that bisects the city and the Ben Franklin Bridge leading to New Jersey, remain. While the rest of Center City has flourished, despite the city's drop in population from 2 million to 1.5 million since 1950, this immediate neighborhood remains riven with parking lots and devoid of retail and housing.

It's within this context that the city has been contemplating the fate of the Roundhouse. Its design, which resembles binoculars—or, perhaps, handcuffs—when viewed from above, won GBQC the AIA's Gold Medal Award for Best Philadelphia Architecture in 1963. The structure pioneered the use of architecturally expressive precast concrete in the United States, incorporating roughly 1,000 precast units in its facade. It stands as a prime example of the midcentury Philadelphia school, which included works by Louis Kahn, Robert Venturi, Denise Scott Brown, and notable architect, educator, and GBQC cofounder Robert Geddes.

Yet, despite these bona fides—and its status as structurally sound—the building was recently denied inclusion in Philadelphia's Register of Historic Places. While this move does not guarantee demolition of the 125,000-square-foot structure, it opens the door to it. The building sits adjacent to a 50,000-square-foot parking lot on a city-owned 2.7 acre lot site ripe for redevelopment.

Should that new development include the Roundhouse? One could argue that such a large site has plenty of space to both reuse the Roundhouse and construct new buildings. The Preservation Alliance for Greater Philadelphia has offered conceptual renderings by a local architecture firm that show how mixed-use towers could be built on the same site, with its generous FAR. If an enterprising developer sought a spot on the National Register of Historic Places for the Roundhouse, federal tax credits could help finance the project.

Yet preserving the Roundhouse really means preserving a facade. While GBQC intended the building to symbolize a more transparent police force, the completed project included a harsh concrete perimeter fence and achieved the opposite effect. To create any street-level connection would require chiseling away at the Roundhouse's exterior. The interior, with its defunct jail cells and police processing areas, would require gutting. Still, keeping the building might be worth doing for reasons beyond architectural ones, as it can safely be assumed that adaptive reuse would entail less embodied carbon.

Finally, while the building is known for its legacy of racist and violent prison practices, a community-engagement process led by the previous mayoral administration found that local residents were open to reusing the building for affordable housing, educating the public on police brutality, and benefiting nearby Chinatown.

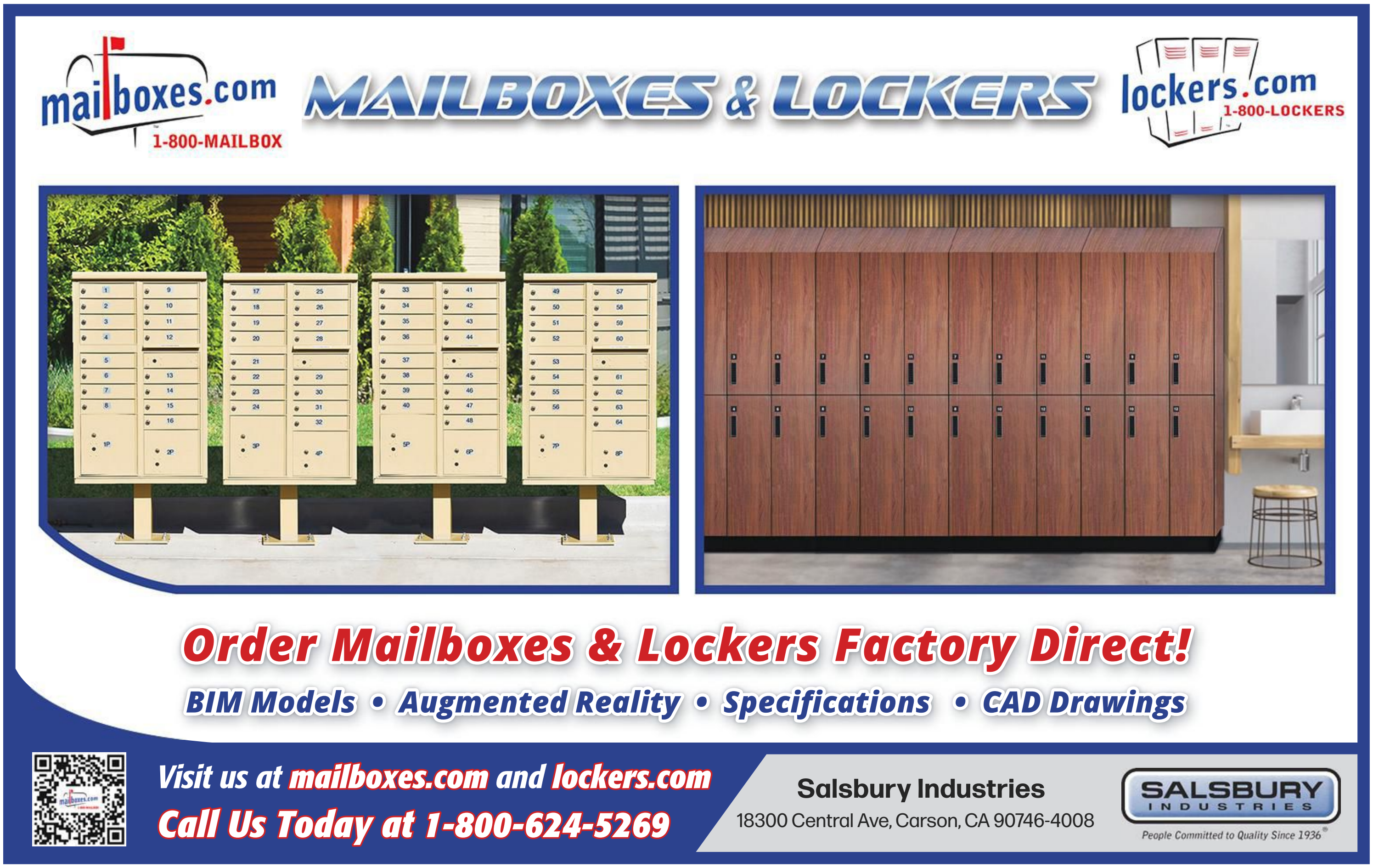
These are all valid reasons to reuse the Roundhouse. But Philadelphia does not have a great record of quickly turning historic buildings into new developments. A Beaux-Arts building by John Torrey Windrim in one of the most choice parts of the city has gone unused for a decade since its designation on the federal Register of Historic Places. A 1961 futuristic saucer-shaped visitors center in famed Love Park has sat empty since a multimillion dollar renovation was completed in 2019; the city's RFP for a restaurant tenant in the space landed not a single response. And there's been no movement on the site of a historically protected 1959 building that served as a city health clinic, even though it was sold in 2019.

To some, these years or decades of vacancy are worth it for the cause of preservation. To me, that stance does not fit the current moment—the housing-affordability crisis is at its worst ever, Philadelphia is once again losing population, and cities across the country are facing a glut of office buildings requiring adaptive reuse. Tricky sites like the Roundhouse will be the last pick. And, after years spent debating a potential new basketball stadium downtown, which ultimately did not come to fruition, there is a renewed push to transform the adjacent neighborhood of Market East, making this parcel additionally valuable right now.

The site has a tantalizing proximity to regional rail and subway connections, as well as highways, that make it ideal for affordable and market-rate housing. Its location two blocks east of Chinatown could provide vital space for retail and community facilities potentially displaced by the new stadium development. Given Franklin Square's built-in audience of families, it is the perfect place to locate other family-oriented offerings, such as a school, health care, or a museum. It's critical that the city not sell this parcel off to the highest bidder but leverage public ownership, to maximize positive social, economic, and environmental outcomes.

Ideally the city would offer an RFP for the site, leaving it to developers to decide whether the Roundhouse would enhance their proposal or not. But it should be noted that time and money are at stake here. To renovate the Roundhouse would require major subsidy—local, state, and federal taxpayer dollars—and potentially a decade where nothing gets built. At what price is this facade worth keeping? ■

Diana Lind writes the Substack "The New Urban Order" and is the author of the book Brave New Home: Our Future in Smarter, Simpler, Happier Housing.



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Erasure, Reconstruction, and Standardization

Wartime destruction, and the rebuilding that follows, can diminish architectural complexity, writes **Alberto Martínez García**.

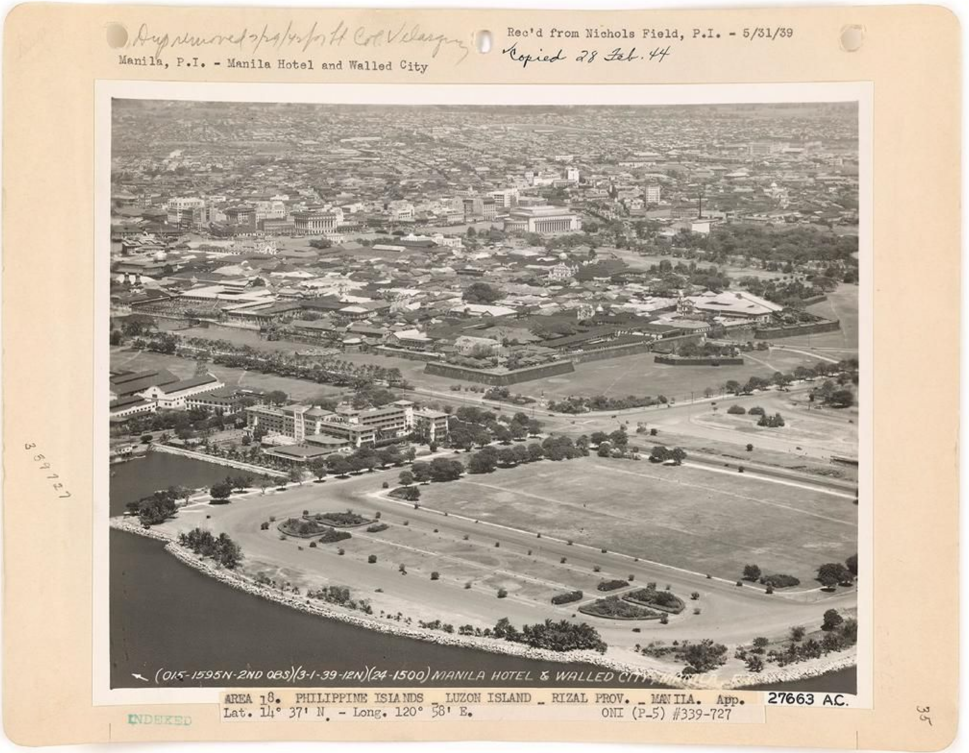
LESS THAN two months after Russia invaded Ukraine in February 2022, politicians and architects were already discussing how to reconstruct urban areas devastated by the war. That April, Norman Foster met with Kharkiv mayor Ihor Terekhov about rebuilding the city. Eight months later, Foster + Partners, engineering firm Arup, and the Kharkiv Group of Architects (an association of local architects organized by the United Nations Economic Commission for Europe, the Norman Foster Foundation, and the local city council) unveiled a master plan that focused on housing and industry, and included, among other elements, a new architectural landmark and clean-energy infrastructure. Today, Kharkiv is still under Russian bombardment and the Foster plan awaits implementation.

Such planning and proposals, drafted against the backdrop of ongoing conflict, have historically occurred—consider the Greater London Plan (1944) and the Baghdad Renaissance Plan (2004). But often these lofty ideas, envisioned or drafted by architects, come with risks of their own. As a result of global trends, technologies, and standards, many contemporary approaches to postwar city-building have the potential to eliminate local building traditions and regional architectural variation. And this can be further aggravated in a world shaped by climate change and the many anxieties surrounding it.

These processes of erasure, which begin during war and expand in its aftermath, remind me of Manila during the Second World War, a city whose colonial legacy I have studied in recent years. Few buildings remain from the Spanish and American periods (the Philippines was a Spanish colony from the 16th to the end of the 19th century, and a U.S. colony during the first half of the 20th century), making it difficult for scholars and researchers to study its past and understand the country's complex adaptation to its climate.

During World War II, bombs dropped by Imperial Japan targeting Allied Forces destroyed much of Manila, including Intramuros, its "Walled City." Although the Indigenous building culture of the Philippines had been previously obliterated, in part, by the U.S., and by Spain before that, Manila's architecture still retained vernacular elements and Chinese construction techniques that locals had learned to refashion for the tropical environment.

The ferociousness of the war, followed by the growth of Manila's population after the country's independence from the U.S., changed the urban landscape and eliminated previous layers of the built environment in a fast-paced process of modernization. Of Intramuros, only the external wall and churches remained; even though reconstruction efforts began in 1946, it remains incomplete. Today, the site includes a mix of Postmodern buildings wrapped with folkloric Spanish colonial and Chinese ornamentation, as well as empty lots and temporary construction.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An aerial view of Manila's Walled City, taken 1939, showing buildings largely destroyed during WWII.

This palimpsest not only makes the task of studying urban environments difficult for scholars, it hastens a process of architectural simplification that is tied to how human bodies perceive climate and thermal comfort. In Ermita, a district in central Manila, bombarded buildings were later replaced with mid-rise concrete structures that were protected from exterior conditions through a variety of sun-shading louver systems. As the neighborhood decayed in the last quarter of the 20th century, it became a red-light district, and many of these structures were abandoned. In recent decades, they were replaced by anonymous towers clad in mirrorlike glass that achieve climate control through central air-conditioning or window units, without any passive-design strategies in mind. Similar buildings have also risen in high-end residential neighbor-

PHOTOGRAPHY: © NATIONAL ARCHIVES AND RECORDS ADMINISTRATION

hoods such as Makati, Taguig, and Pasig, as well as in other parts of the world, regardless of local climate.

This process follows a series of "flattening" operations that reduce the complexity of the facade. The colonial building stock featured deep open-air galleries and arcades that resembled the Indigenous vernacular that came before it. This was followed by concrete brises-soleil, sometimes covered with tropical plants. Lastly, unitized single- or double-pane curtain walls completely seal buildings from the outdoor environment. This process has run parallel to a narrowing ideal of thermal comfort, encouraged by code. In 1966, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) released *ASHRAE Standard 55: Thermal Environmental Conditions for Human Occupancy*, setting the basis for acceptable indoor temperatures through mechanical systems and air-conditioning. By the early 1990s, ASHRAE 55 had infiltrated the Philippines and other Southeast Asian countries, and temperature and relative humidity were set at a range between 75 and 82 degrees Fahrenheit, and 30 to 60 percent.

Before the advent of air-conditioning, thermal comfort was an architectural problem—architects used facades and consecutive spaces to passively adjust sunlight, heat, humidity, glare, and visibility. By the end of the 20th and beginning of the 21st century, thermal comfort was an engineer's problem, reduced to pipes, ducts, and filters, all tucked away and creating artificial environments with few differences between regions or climates.

The establishment of the U.S. Green Building Council (USGBC) in 1993 and the development of the point-based Leadership in Energy and Environmental Design (LEED) green-building rating systems have further exacerbated the ubiquity of the built environment. The first LEED-certified building in the Philippines was completed in the 2010s; by 2022, the Philippines was among the top 10 countries with the most LEED-certified square feet. From massing, material, and facade standpoints, these buildings share many similarities and could appear anywhere. They present a veneer of environmental responsibility for projects that often have substantial carbon footprints, and incentivize generic solutions to otherwise localized challenges.

Although this condition persists around the world, the example of Manila's urban development before and after World War II is an unsettling one. It demonstrates how not only war, but the reconstruction in its wake create a break with the past. Such a disjunction can exacerbate an imbal-

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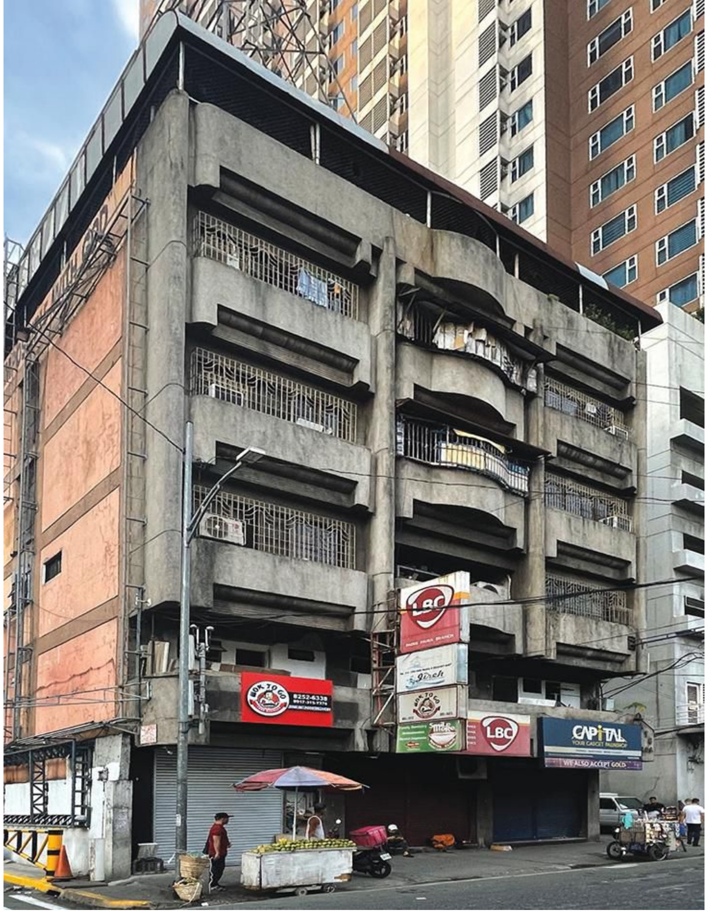

In the Ermita area of Manila, buildings with shade-creating facades sit adjacent to newer air-conditioned towers (right).

PHOTOGRAPHY: © ALBERTO MARTÍNEZ GARCÍA

ance between global standards and place-based needs. In the Philippines, both Indigenous people and colonials learned over centuries to adapt structures to the tropical climate. That is not to downplay the consequences of colonialism but rather to highlight how transnational protocols can have an impact equal to or greater than local ones in shaping cities, and uproot vernacular particularity.

In today's environment of simultaneous wars and escalating conflict, it's worth considering how cities historically handled reconstruction. When cities currently being devastated are rebuilt, they will need to respond to the perilous climate situation. LEED certification may seem like an appealing solution, but it may also come at the expense of learning from the past. Looking at how territories have historically adapted to the environment can better inform us about how to reconstruct an uncertain future. ■

Originally from Madrid, Alberto Martínez García is a designer, architectural historian, and doctoral student at Yale University. His work focuses on environmental history and colonial architecture.

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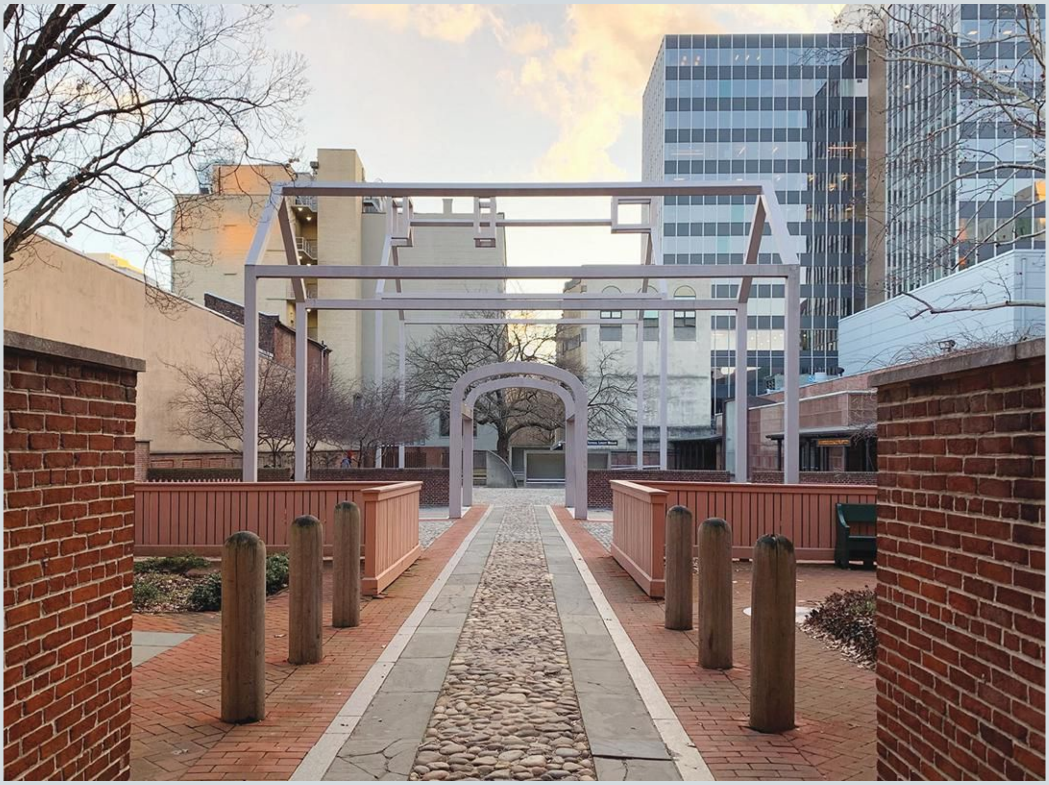

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The Penguin Pool at the London Zoo was designed by **Berthold Lubetkin** and his firm, the Tecton Group, and was completed in 1934. A landmark of British Modernism, it was also the start of a fruitful collaboration between the Tbilisi-born architect and the young engineer Ove Arup, who was responsible for achieving the remarkably long spans of the two curved ramps.

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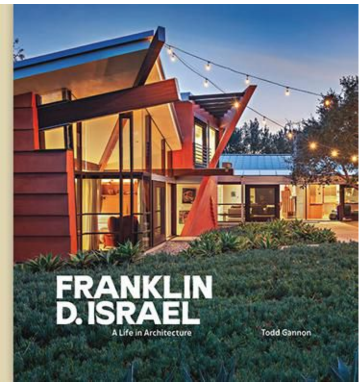
Franklin D. Israel: A Life in Architecture, *by Todd Gannon. Getty Publications, 256 pages, $60.*

REVIEWED BY PETER STAMBERG & PAUL AFERIAT

WE OFTEN HEAR that history flatters the past by forgetting half of it. Although we shouldn't need to be reminded of the lives taken by the HIV/AIDS epidemic, and the artistic and architectural potential lost because of it, every now and again there is good reason to reflect. Todd Gannon's newly published biography, *Franklin D. Israel: A Life in Architecture*, makes that point perfectly. Israel, best known for the Weisman Pavilion (1991) in Los Angeles and the Dan House (1995) in Malibu, was only 50 years old when he died in 1996, the age at which most architects just start to blossom.

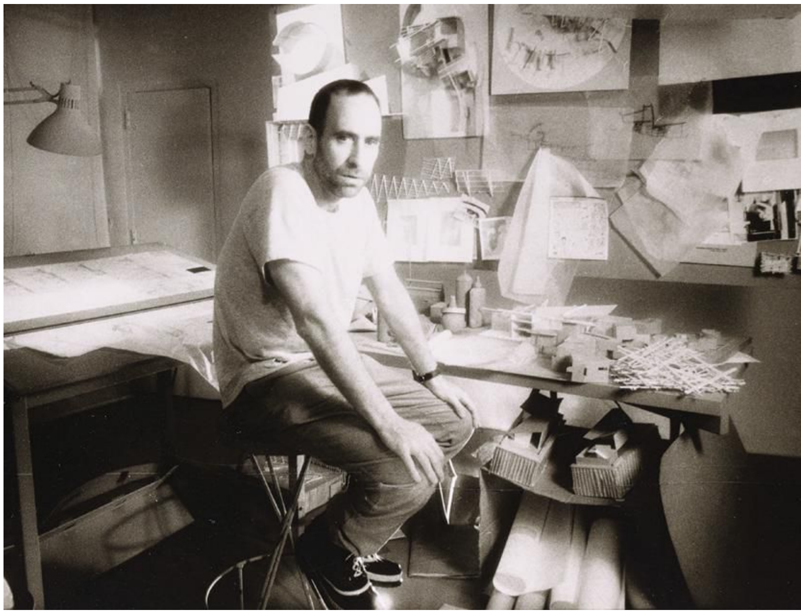
One of us (Peter) first crossed paths with Frank, as he was called, in the summer of 1961 at Camp To-Ho-Ne, in the Berkshires. During the McCarthy era and in its wake, summer establishments like this one were euphemistically called "pink-diaper-baby camps," catering to the children of politically left-leaning parents. Israel was 16 years old and I was only 12 when we met. Nonetheless, we became friends. He even wrote a rhyme about me—I was something of a preteen fashionista—for *The Camper*, the To-Ho-Ne newspaper, of which he was editor. It began:

Peter Stamberg, of Fire Island fame,
As Beau Brummel has earned his name.



Israel's life and mine intersected periodically and importantly over the 34 years that followed. But it was at To-Ho-Ne that we were encouraged to think humanistically and to look for ideas that are creative and unusual, not ones hobbled by rules or tradition. This credo guided Israel the architect, as Gannon astutely points out.

Several months after Israel succumbed to illness, the American Academy in Rome, where he had been a fellow, held a memorial in New York. Although an earlier such gathering, which Gannon describes in detail, had been organized in Los Angeles, the city in which Israel had settled, this East Coast gathering is an event that neither of us (Peter and Paul) will ever forget. It took place, appropriately, in the august McKim, Mead and White–designed Metropolitan Club on Fifth Avenue. In attendance was a broad cross section of those involved in the arts and politics. But the core group were the intelligentsia of the architectural world—everyone from the young Turks to the old guard, from the hardcore Modernists to the Postmodernists and the classicists. The crowd was testament to the prescience of Israel's work and his promise as a rising star in the architectural firmament.


Franklin D. Israel, photographed in the installation *Architect's Office* at the UCLA architecture gallery in 1992.

One speaker, Suzanne Stephens, former deputy editor of ARCHITECTURAL RECORD, presented an anecdote that was ultimately a metaphor about his design process and architecture. She recounted a summer weekend in the 1970s, when she invited Israel to visit her ramshackle East Hampton beach house. On Saturday morning, Israel announced that they should try to get themselves an upgrade, suggesting lunch at the much posher retreat of Robert and then-wife Lynn Stern. (Stephens did not name names during her eulogy, but she later privately told us their identities.) Not wanting to seem gauche, Israel had the idea that Stephens should instead invite the Sterns over, thinking that they would decline the invitation to such modest digs and conversely extend one to their grander house. To Stephens's and Israel's surprise (and dismay), Stern not only accepted, but announced his intention to bring along two wealthy, important clients. Panic ensued. What would they serve? There was nothing in the house from which to make lunch, and no time to shop for groceries. But Israel calmly went through the kitchen cabinets and the fridge, pulling out miscellaneous finds. Effortlessly, he whipped up a tasty clam chowder and clam pie for lunch. Lynn even asked for the recipe.

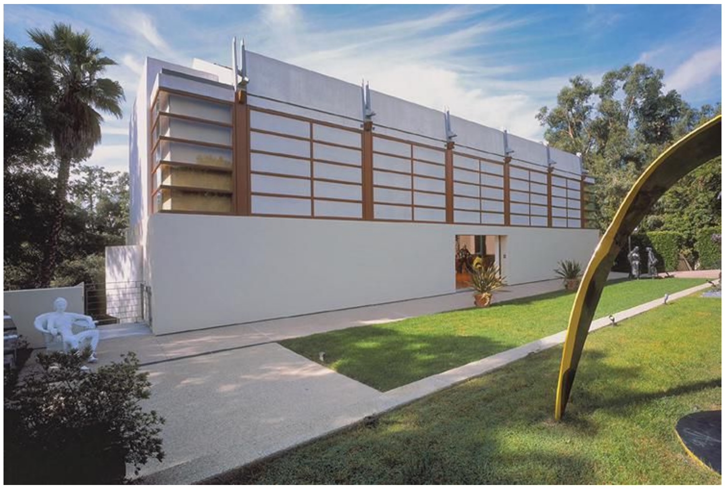
As architects, we strive to be alchemists, spinning dross into gold. As Gannon describes it, Israel had a gift for not only appearing to move architecturally in several directions at once, but to seemingly wander down *unpromising* paths and ultimately create spaces capable of lifting the spirits of anyone lucky enough to experience them. That was just one of the many talents for which Israel is remembered.

In addition to highlighting the groundbreaking, unique, and important aspects of Israel's architecture—appropriately, these comprise the main thread of this chronologically organized book—Gannon deftly weaves in discussions of his remarkable personality.

While Israel often said that he felt like an outsider wherever he lived, from New Jersey to New York City to London to Tehran and ultimately Los Angeles, his memorable ability to relate to strangers and friends alike made him an important figure everywhere he went. In each of the places where he spent significant amounts of time, he found his way into intellectual circles and met many luminaries. Always serious about architecture, he also conveyed an astonishing empathy with all points of view. Beyond that, he showed his human side in his remarkable skills as an information-gatherer and in personal insights.

PHOTOGRAPHY: © DENNIS KELLEY

Israel's pavilion for the Weisman Art Foundation is perched in the Holmby Hills of Los Angeles.

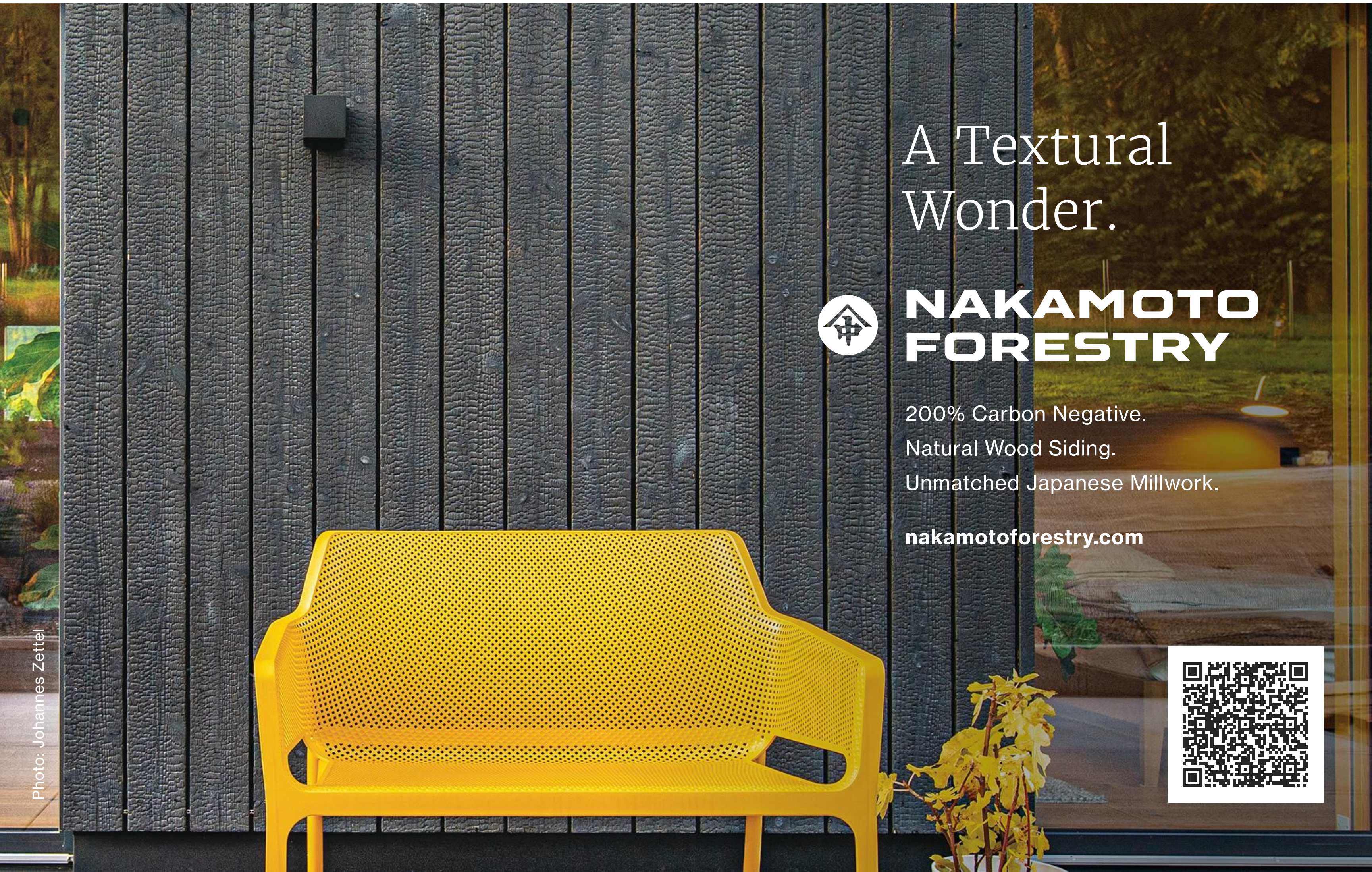


PHOTOGRAPHY: COURTESY FREDERICK R. WEISMAN ART FOUNDATION

As Gannon quotes Thom Mayne, a member of what became known as the Los Angeles school in the early 1980s, a few years after Israel moved to the city: "He was unlike a group of us that were way more asocial. He was way more connected . . . and understood social graces." Mayne continues, admitting that he and many of his generation were "just a bunch of angry people. Frank wasn't like that at all."

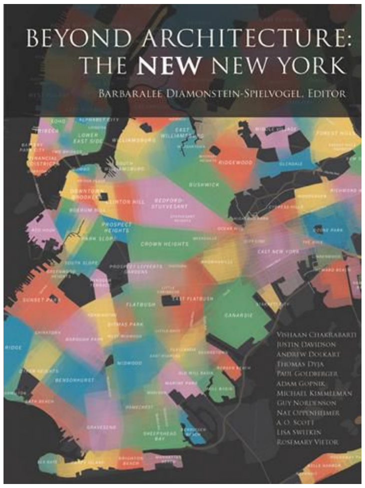
A Life in Architecture carefully brings the story of Frank Israel full circle. At the start of the book, Gannon uses the terms *sensitivity*, *intimacy*, *humanity*, and *uncanny*—four fitting words, especially the last—to describe the leitmotif of Israel's work. Gannon moves through his subject's life, vividly describing a Modernist approach to materials and detail, discussing the dynamism of Israel's plans, as well as a certain penchant he had for romanticism. When speaking with non-architects about the architecture of the last 40 years and the differences in approaches across the United States, we often say that the practitioners along the eastern seaboard have been busy refining the project of Modernism, while those on the West Coast have forged a distinctly American architecture. This is one way to look at it—but Israel was one of the very few who could bring those two worlds together with an inventiveness that was almost *uncanny*, and that says so much. ■

Peter Stamberg and Paul Aferiat are founders of Stamberg Aferiat + Associates, an architecture firm based in New York.



Beyond Architecture: The New New York,
edited by Barbaralee Diamonstein-Spielvogel. New York Review Books, 224 pages, $38.

Longtime preservationist and arts advocate Barbaralee Diamonstein-Spielvogel has assembled an impressive roster of critics and practitioners in her latest volume, published on the 60th anniversary of the New York City Landmarks Law that strengthened the commission charged with protecting significant buildings in the five boroughs. In the book, contributors muse on the legacy and future of historic preservation in the ever-changing city. Following is an excerpt from "Engineering Landmarks," an essay written by Guy Nordenson (whose conversation with John Ochsendorf appears on page 89) and Nat Oppenheimer, which explores the traces of history left behind by different construction techniques.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ROSEMARY VIETOR

Reflecting on "creative destruction" and the city, the New Yorker Marshall Berman wrote, "Even the most beautiful and impressive bourgeois buildings and public works are disposable, capitalized for fast depreciation and planned to be obsolete, closer in their social functions to tents and encampments than to 'Egyptian pyramids, Roman aqueducts, Gothic cathedrals.'" Landmark laws restrict the extent of this churn by maintaining objects and districts of continuity. In the language of ecology, creative destruction can also be framed as part of the cycles that C.S. "Buzz" Holling associated with ecological (as opposed to engineering) resilience and the corresponding adaptive cycle of growth, development, collapse, and renewal. The related concepts of social-ecological adaptive cycles describe cyclical patterns of nature and societies that repeat but also evolve in "nested" cycles. Natural systems, from boreal forests to the Serengeti, transform through cycles of growth, destruction, and regeneration that can extend over decades. To arrest those cycles—say, with fire prevention in forests—can risk extinctions. Similarly, to fixate on notions of steady state and equilibrium—the idea in engineering resilience of "bouncing back"—misses the nonlinear dynamics of real urban systems.

It is useful in this sense to study the periodic transformations and expansion of museums and performing arts centers in New York. Both of the present authors have served as structural engineers for these projects,

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including those of the Guggenheim Museum, the Museum of Modern Art (MoMA), the Metropolitan Museum of Art, and the Metropolitan Opera. MoMA, for example, has added buildings over time since its start in 1939, in the building designed by Philip L. Goodwin and Edward Durell Stone. Major expansions have occurred—in 1980–84 with César Pelli, in 2001–04 with Yoshio Taniguchi, and, most recently, in 2016–19 with Diller Scofidio + Renfro (DS+R). Buildings and a garden were added by Philip Johnson between 1950 and 1964. With each cycle, the choices to retain or replace reflected the prevailing taste. Taniguchi aptly captured that dialectic by framing the Johnson garden, painstakingly recreated, in his all-around crisp Modernism, while restoring the historic sequence of facades along the side of the 53rd Street entrance. DS+R's addition to the west, including the tragic destruction of the American Folk Art Museum (designed by Tod Williams and Billie Tsien), extended this sequence to include the Jean Nouvel tower at the west end. Along the street, one can follow the history from Goodwin-Stone to Nouvel via Johnson, Pelli, Taniguchi, and DS+R.

From the engineers' viewpoint, this history is also embodied in the multiplicity of structures, enclosures, and systems that emerged from an equally eclectic series of actors. While mostly invisible, there is a compelling story of New York construction, quite like that of the commercial construction of tall buildings noted above, which has been incorporated through these cycles. Both the Pelli and Nouvel towers are built in typical residential flat-plate construction, though the Nouvel tower's jagged profile displays a jazzy version of Chicago-style diagonal bracing. The remaining museum sections are a mixture of concrete and steel framing. The Taniguchi expansion includes some mostly invisible nuances, both in the structure's tatami-inspired geometry and the extreme minimalism in some places, including the carving of spaces through the Pelli tower to accommodate the reconfigured circulation. What is striking, and very New York, is the feeling inside the fully expanded museum of smoothed, frictionless space as one progresses through the invisible history of constructions.

In contrast, the multiple expansions of the Metropolitan Museum of Art are more clearly manifest as one moves around its labyrinthine interior. One of the museum's charms is the difficulty of finding one's way, proving a challenge to many young explorers. This palimpsest of architectures presents a very different experience from the MoMA's "make it new" smoothness. Yet here, too, the embedded history of construction is little understood or documented. Morrison Heckscher's excellent history of the sequence of buildings, from the those of Calvert Vaux to those of Kevin Roche, shows how each generation of expansion wraps around and both buries and loads the last. Depending on the architect, the corresponding constructions may have some historical significance or not. The records are limited. In one instance, in the 1960s, the lack of understanding and docu-

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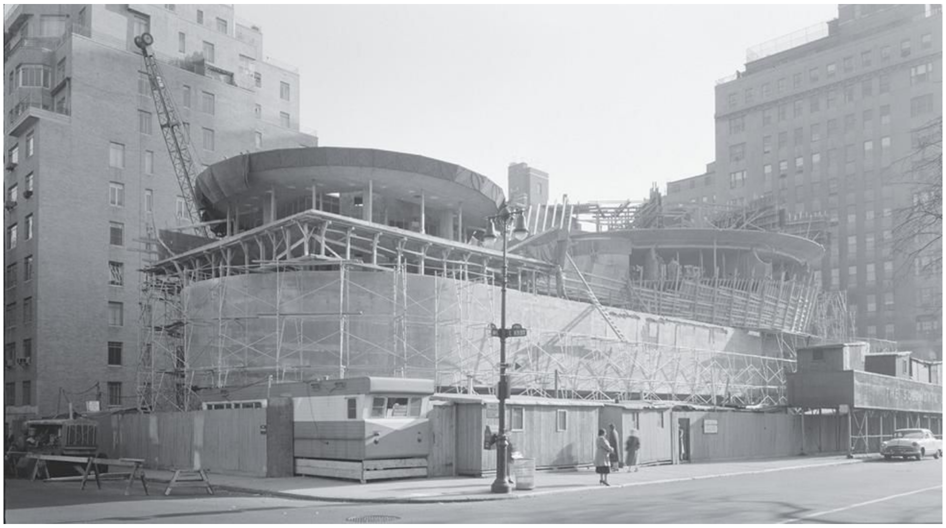

The Guggenheim Museum (pictured here in 1957) posed a complex engineering problem during its renovation in the 2000s.

mentation of the Guastavino vaults installed at Charles McKim's direction in the courtyard and gallery spaces of the northern Wing H (1904–13) resulted in their demolition. They were replaced by a steel and concrete floor for the expanded Egyptian exhibits. As has often happened in New York, a combination of lost craft knowledge and misplaced or nonexisting documentation has led to the demolition of these hidden cultural treasures. At the Metropolitan Museum of Art in particular, given its age and position at the edge of Central Park, a rich material culture and history is subsumed in the walls and floors. These—including the underground and back-of-house hidden mysteries, from water tunnels to vaulted foundations—could warrant a follow up to Heckscher's history.

The Guggenheim Museum, designed by Frank Lloyd Wright and completed in 1959, represents an obvious landmark in many ways, including, in our opinion, structurally. Apart from the more conventional northeast portion of the building (where the stairs and elevators are located), the majority of the structure consists of nine cast-in-place concrete radial "web walls" (visible within the galleries), the continuously rising ramp slab (cast-in-place concrete as well), and the iconic facade spiral, which was constructed in con-

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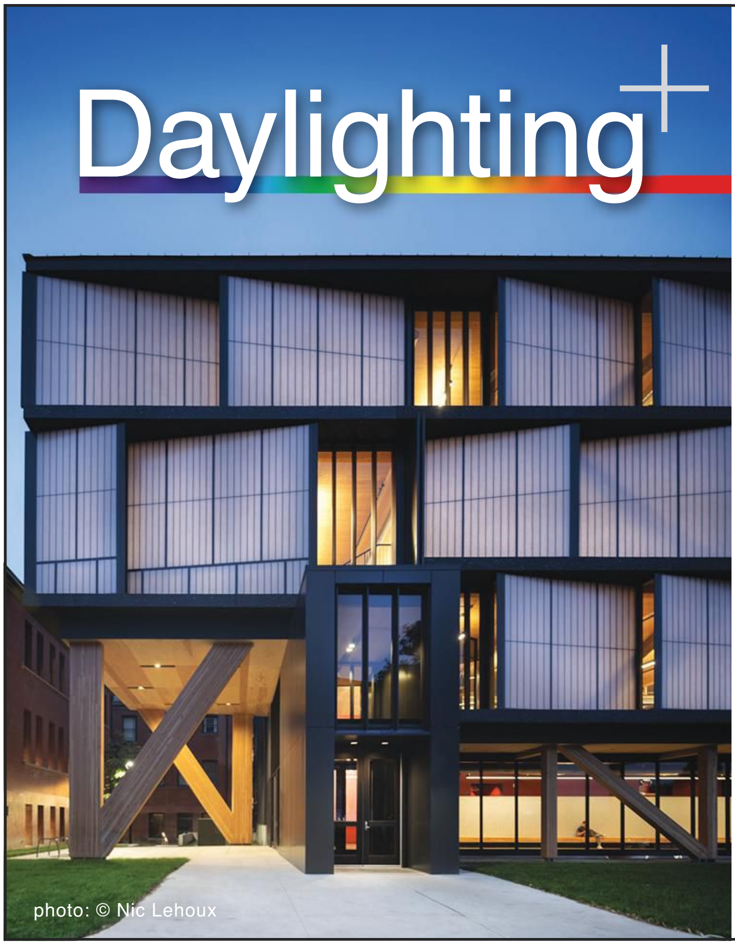
crete using the gunite method (fluid concrete that was sprayed onto mesh reinforcement, a method more often used to build swimming pool shells or sculpture).

The precise performance of the Guggenheim's facade—both the portions hung from the web walls and simultaneously bracing the web walls—has not always been evident. While there is a clear structural-load path throughout and, by observation, the structure is rigid and laterally capable, in 2005–08, a structural team, led by Robert Silman, was asked to determine the cause of persistent cracks in the facade concrete that have vexed the museum from the outset. The analysis and fix ultimately provide a potent example of using modern analysis tools to assess, and then restore, historic structures. The critical feature of this approach is harmonizing modern digital design programs with archaic structures to ensure that one does not incorrectly ascribe modern properties and behavioral assumptions to brittle elements from an earlier time.

At the time of Silman's analysis, large-scale digital scanning was relatively early in its use in buildings but had finally become available beyond academic domains. Given the importance and scope of the building, the team leveraged this new technology, scanning the entire building into an unimaginable digital cloud of data, which was then converted into a three-dimensional geometric image. They uploaded that image into structural modeling software and analyzed it as a solid concrete structure. This process took months to complete (months alone simply to clean up the data and "mesh" the elements in the model); it would take considerably less time today, as the technology has advanced rapidly in the 20-plus years since this analysis took place.

Over the long period of modeling, the building was simultaneously monitored under all external conditions on a day-by-day basis, with the ultimate intent of calibrating in situ movements with the computer model. Finally, simultaneously with both of these efforts, the team opened physical probes on the facade that unlocked the key to the ultimate design solution: discontinuities in the reinforcing at the circular facade. These discontinuities would not have been visible to any sort of scanning (even today), because the break in the reinforcing was obscured behind other steel elements.

By combining each of these steps, the team learned the cause of the cracking and then, most importantly, designed a fix that could be verified with confidence, based on the calibration of the digital model with actual behavior in the field. Any one of these approaches may have yielded a supposition or recommendation. Together, model, monitoring, and testing ensured that the fix (in this case, laminating the entire nonhistoric inside face of the facade with carbon fiber to add tensile strength) aligned with the original intent of the structure. Quietly, and hidden behind the finishes, this trifecta returned the structure to its original intent. The churn in this case was more one of the technological sort within a unique form. ■



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BUILDING TYPE STUDY 1,072

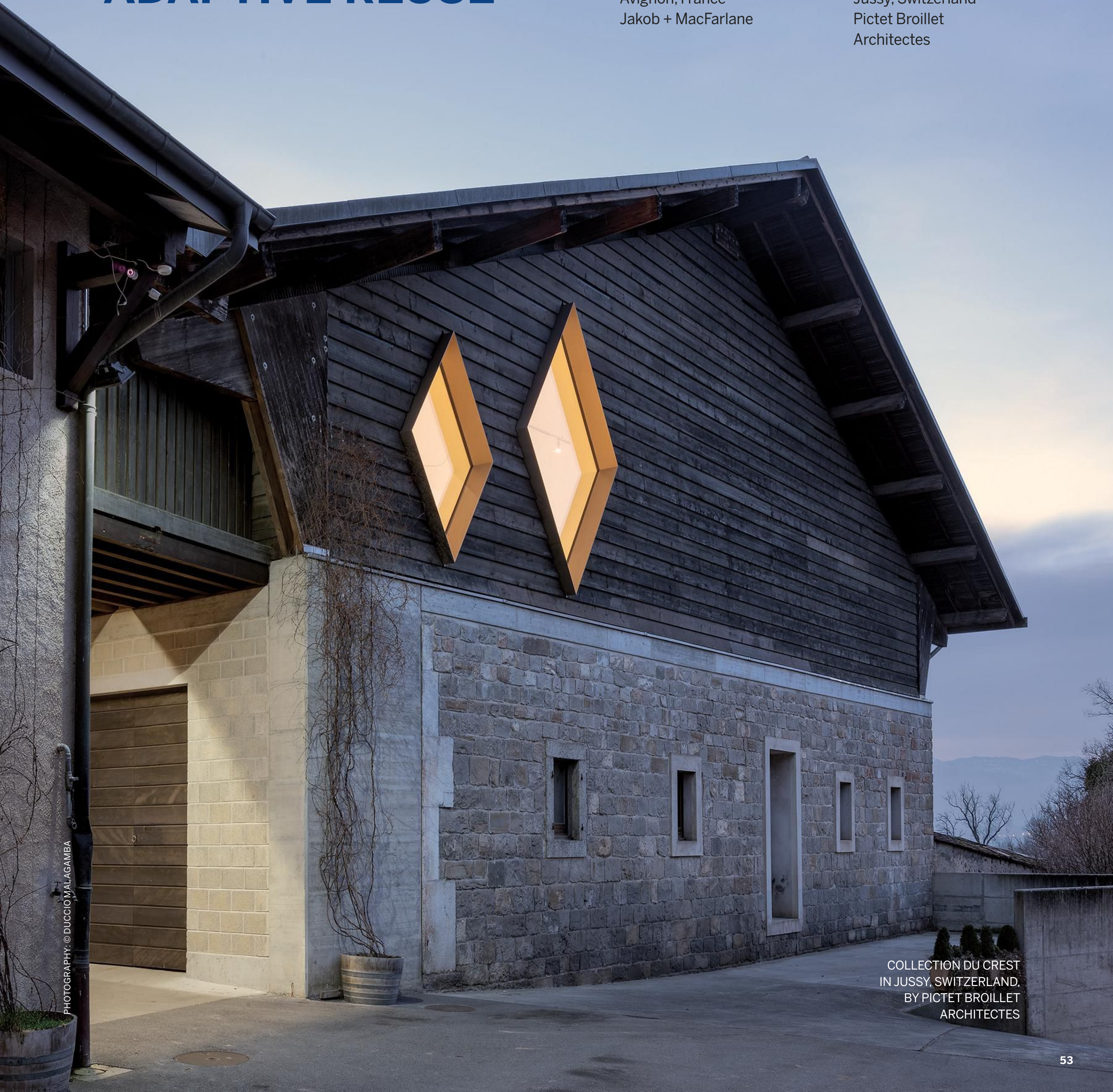
RENOVATION, RESTORATION & ADAPTIVE REUSE

54 Honnen Arts
Colorado Springs
Kennedy & Violich Architecture

60 Bibliothèque Renaud-Barrault
Avignon, France
Jakob + MacFarlane

66 One Madison Avenue
New York
Kohn Pedersen Fox

72 Collection Du Crest
Jussy, Switzerland
Pictet Broillet Architectes



COLLECTION DU CREST IN JUSSY, SWITZERLAND, BY PICTET BROILLET ARCHITECTES

PHOTOGRAPHY: © DUCCIO MALAGAMBA

HONNEN ARTS | COLORADO SPRINGS | KENNEDY & VIOLICH ARCHITECTURE

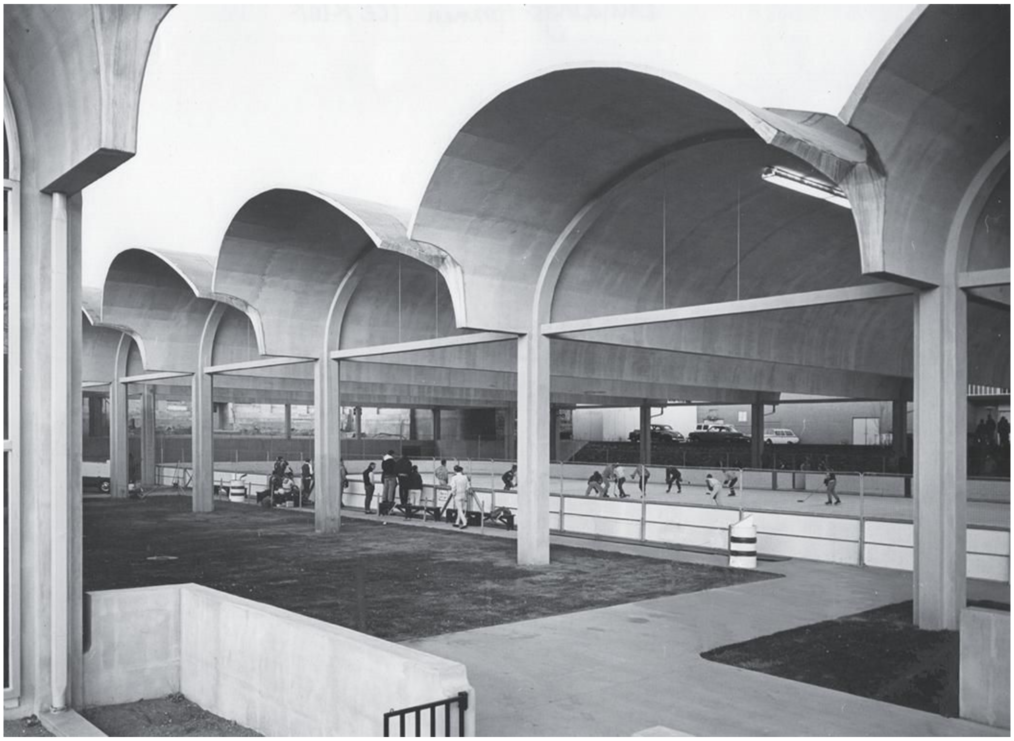
From the Vault

At Colorado College, a distinctive but disused hockey rink gets a new lease on life as a visual arts hub.

BY DAVID HILL
PHOTOGRAPHY BY FRANK OOMS

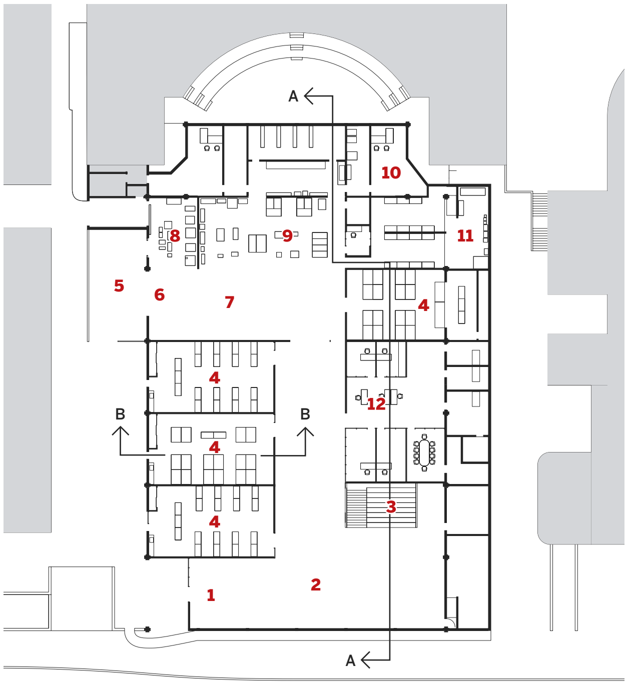
WHEN Sheila Kennedy and J. Frano Violich, founding principals of Boston-based Kennedy & Violich Architecture (KVA), first stepped inside Honnen Ice Arena, they were startled by what they saw. Located on the campus of Colorado College, a small liberal-arts college in Colorado Springs, the building—a thin-shell concrete structure from 1963—had sat unused for several years after the construction of a new arena for the school's Division I hockey team. The building, designed by local practice Lusk & Wallace, was dark, dank, and mildewy. The arena's 80-foot-high ceiling vaults had been covered with foil-faced batt insulation. Daylight barely penetrated the rows of narrow, fiber-reinforced plastic windows, which had yellowed with age. No wonder the college had once considered demolishing the building.

"You would have quit on the spot if you had seen what it looked like," says Violich, who quickly saw the building's potential for reuse. The ceiling, in particular, captured the architect's imagination. "I immediately thought of Louis Kahn's Kimbell Art Museum," Violich says. "There's something monumental about a vaulted space like that."

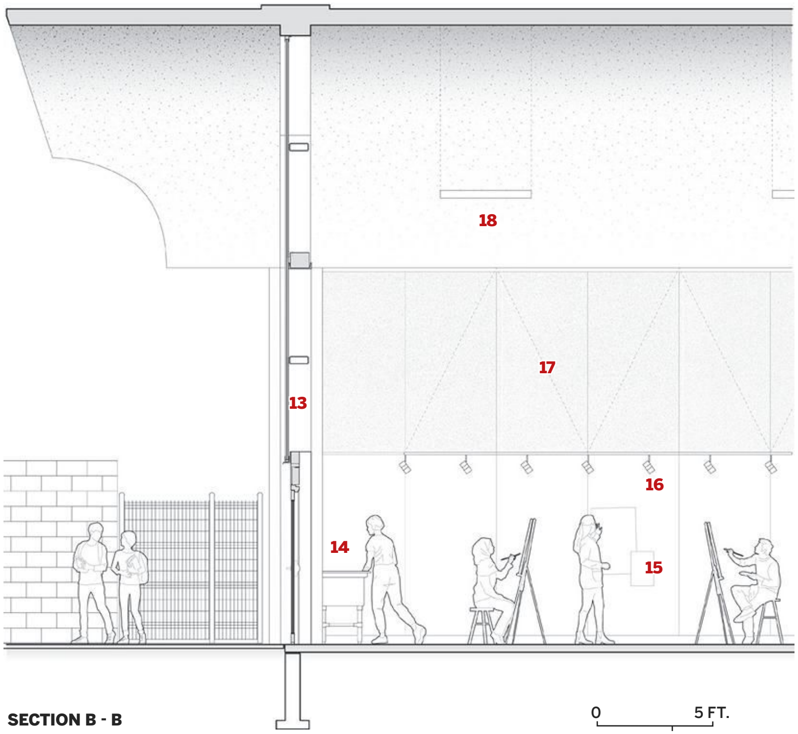


PHOTOGRAPHY: COURTESY COLORADO COLLEGE ARCHIVES (LEFT)

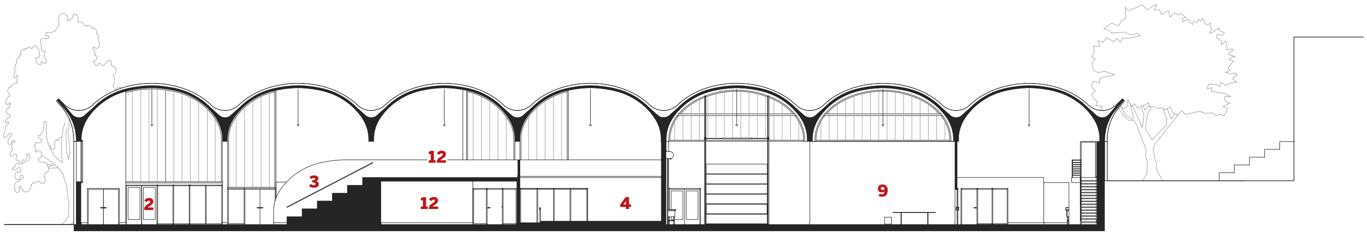
THE COLLEGE'S new home for 3D arts (this image, at right) was built as a hockey rink (left) and is comprised of repeating thin-shell vaults like its adjacent natatorium (this image, at left).



GROUND-FLOOR PLAN



SECTION B - B



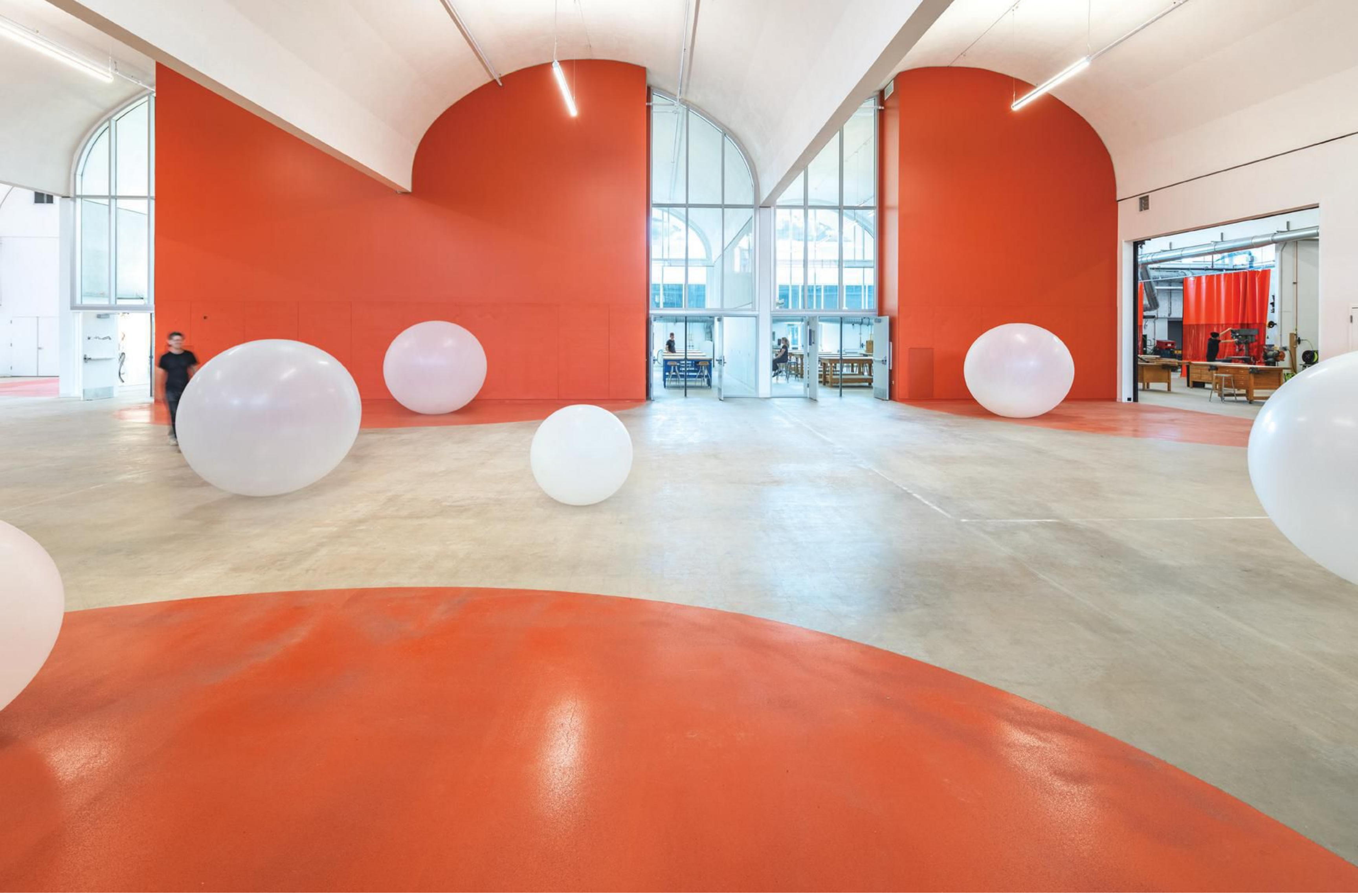
SECTION A - A

1 PUBLIC ENTRY
2 EXHIBITION
3 BLEACHER STAIR
4 STUDIO/CLASSROOM
5 OUTDOOR WORK YARD
6 STUDIO ENTRY
7 INDOOR/OUTDOOR WORKSPACE
8 METAL SHOP
9 WOODSHOP
10 FACULTY OFFICE
11 FABRICATION LAB
12 CENTER FOR CREATIVITY AND INNOVATION
13 1-INCH IGU
14 CLEANUP SINK
15 PIN-UP SURFACE
16 TASK LIGHTING
17 ACOUSTIC PANELS
18 AMBIENT LIGHTING

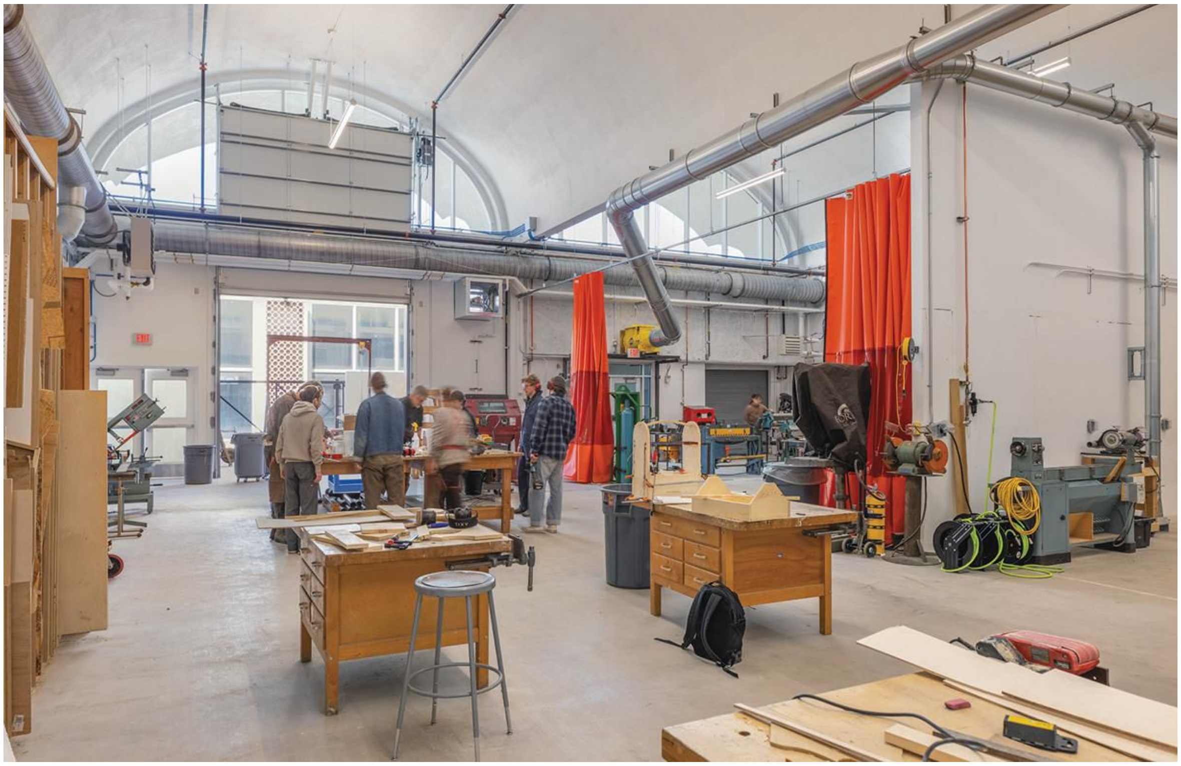
Kennedy, too, imagined possibilities. “With adaptive reuse,” she says, “you have to be able to look at the future. You can’t just stop and be satisfied with the existing conditions. It has to be transformative.”

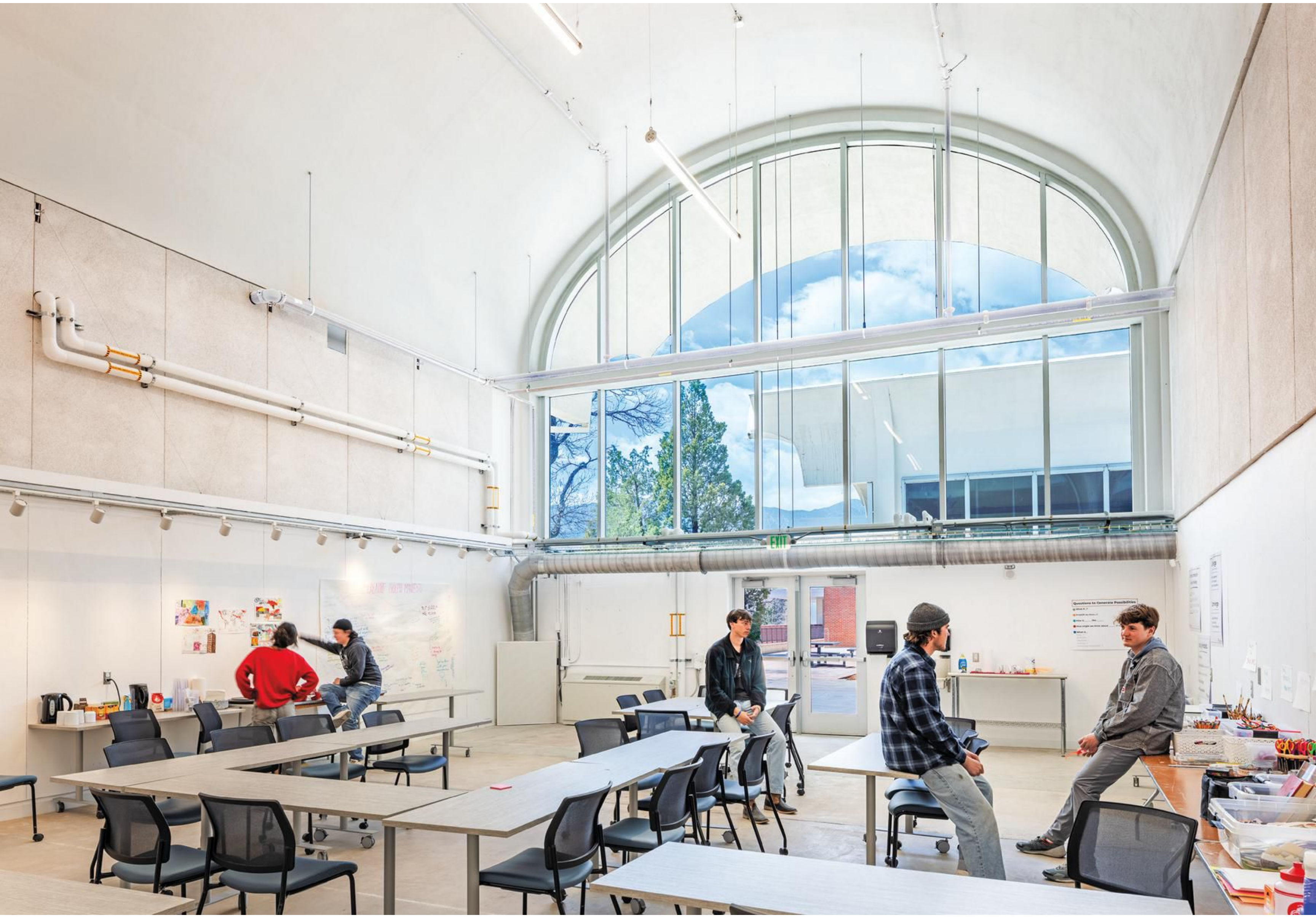
It has been. After a $5.5 million renovation, the ice arena has become Honnen Arts, a 29,000-square-foot facility for 3D-arts offerings. Ironically, the college’s previous 3D-arts workshop—an ’80s-era concrete-block building much loved by students and faculty—was located on the site of the new hockey arena, which opened in 2020. When the workshop was demolished, the program had to make do with temporary quarters, including a portable classroom. Some fabrication equipment was put in storage for several years. Call it poetic justice that the 3D-arts program’s new location is the hockey team’s old home.

Given the project’s modest budget, KVA’s design strategy was to retain most of the building’s exterior features while focusing on the vast interior space. “One of our main considerations, and challenges,” Kennedy says, “was to preserve the unique spatial character of those large, free-span vaults.” The architects added a new, recessed entry at a prominent street-facing corner, using a reddish-orange paint scheme as a wayfinding signal. Inside, in the space once occupied by the ice rink and bleachers, are work desks, classrooms, offices, new bath-



REDDISH ORANGE is used both inside and out as a wayfinding device and to accentuate certain elements, including some in the gallery (above) and the woodshop (right).





THE ARCHITECTS took full advantage of the lofty vaults in the classrooms (above and opposite) and throughout the building.

rooms, and a flexible gallery space. Kennedy and Violich employed the same reddish-orange color used at the entrance to create an interior "street" that leads to the enclosed workshops. Painted floor areas mimic the curves of the barrel vaults, an effort to give the building a new public identity. "Everybody knew the building as a hockey rink," Kennedy says. "How do you now make it known as the 3D-arts hub?"

The shops include equipment for woodworking, metal fabrication, 3D printing, laser cutting, and CNC milling. A garage door on the west end of the shop space leads to a fenced-off area containing kilns and a blacksmith forge.

When Honnen Arena first opened, the rink was open to the air on its sides; the vaulted concrete structure was designed as a pavilion to provide shade for the ice rink. (A similar building, Schlessman Natatorium, was constructed next door.) At some point, however, the rink was fully enclosed by concrete walls, stacked terra-cotta tubes, and those plastic windows. KVA created a sense of transparency by replacing the west-facing ceramic tubes and old windows with insulated glazing, allowing daylight to fill the interior spaces. (Because the vaults overhang by 12 feet or so, very little direct sunlight enters the building.) You can even catch a glimpse of Pikes Peak if you turn around just inside the entrance and look to the west.

KVA swapped out the existing fluorescent lights for energy-efficient fixtures that hang from the apex of the barrel vaults, taking advantage of the curved ceiling's reflective qualities.

Instead of a conventional—and costly—climate-control system, the building uses displacement ventilation, with conditioned air distributed from floor level at low velocities. The system also relies on Colorado's high-altitude, low-humidity climate to purge warm air overnight while bringing in cooler outdoor air. (Colorado Springs, at 6,035 feet above sea level, is even higher in elevation than mile-high Denver.)

For now, Honnen remains unfinished, with several interior spaces empty and blocked off. KVA has drawn up plans for a second phase that would turn those rooms into additional studios, classrooms, and faculty offices. The plan also calls for a mezzanine, creating a "Center for Creativity & Innovation" with additional gallery space and student gathering areas, and offices, studios, and meeting rooms below.

Art professor Scott Johnson, who supervises the facility, still laments the loss of the old 3D workshop, but he's delighted the program has a new home in a distinctive 20th-century building. "The cathedral-like spaces are so conducive to creative work," he says. Repurposing an existing building, he adds, is in keeping with the college's sustainability efforts. (In 2020, Colorado College became the first Rocky Mountain–region institution to achieve carbon neutrality.) "It's a living example of what we do here." ■

David Hill, a journalist based in Denver, writes frequently about architecture, design, and urban planning.

Credits

ARCHITECT: Kennedy & Violich Architecture — Frano Violich, managing principal; Sheila Kennedy, principal consulting on design; Ben Widger, project architect; Nick Johnson, lead designer; Daniel Sebaldt, Katie Koskey, designers

CONSULTANTS: HCDA Engineering (structure); Farris Engineering m/e/p/fp; Terra Nova Engineering (civil); Available Light (lighting); Cavannaugh Tocci (acoustics)

GENERAL CONTRACTOR: GH Phipps Construction

CLIENT: Colorado College

SIZE: 29,000 square feet

COST: $5.5 million (construction)

COMPLETION DATE: March 2024

Sources

MASONRY: Basalite

STUCCO WALL ASSEMBLY: Sto

METAL ROOFING: Pac-Clad

METAL-FRAME WINDOWS: Tubelite

METAL DOORS: Assa Abloy

UPSWING DOORS: Overhead Door

HARDWARE: Schlage, LCN, Von Duprin

PANELING: Cardinal Acoustics, Homasote

TILE: Daltile

RESILIENT FLOORING: Tarkett

PAINTS AND STAINS: Benjamin Moore

LIGHTING: LUX Dynamics, 3G Lighting

VENTILATION DIFFUSERS: Price Industries

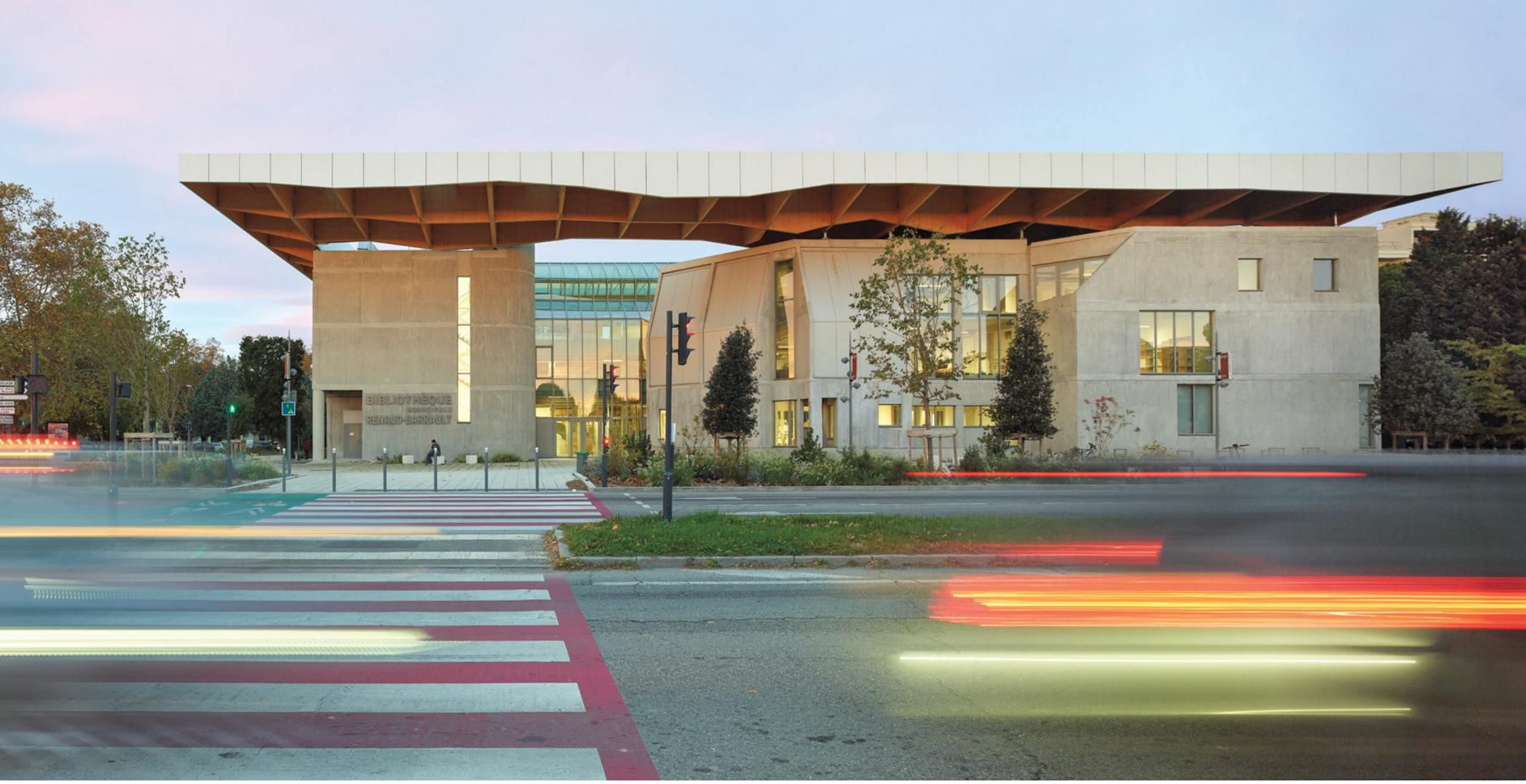
DUST COLLECTION: Camfil

BIBLIOTHÈQUE RENAUD-BARRAULT | AVIGNON, FRANCE | JAKOB + MACFARLANE

Tree of Knowledge

The failing building of a struggling library is pruned to meet 21st-century needs.

BY CHRIS FOGES
PHOTOGRAPHY BY ROLAND HALBE

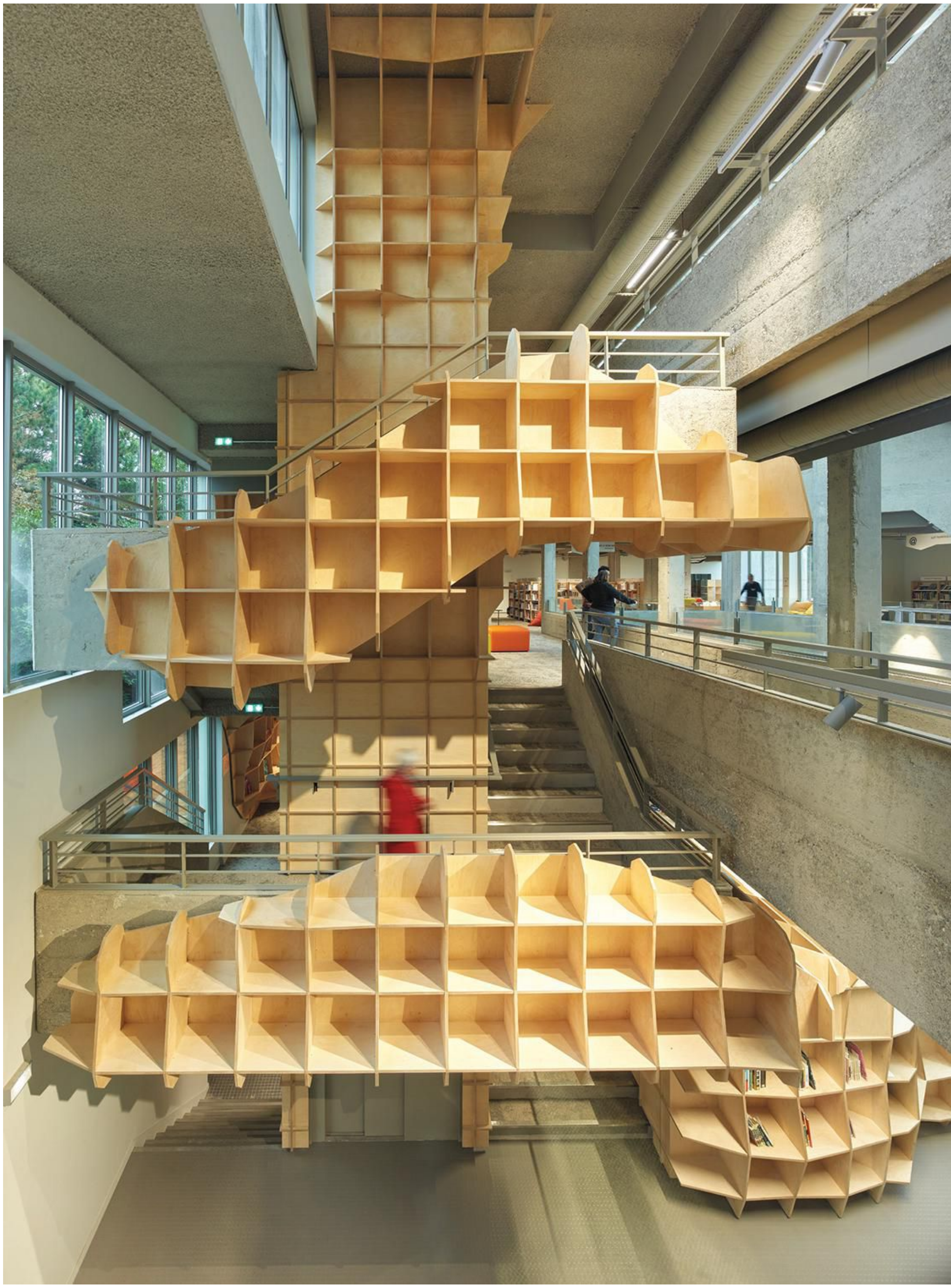


A LOT can change in four decades. In its comprehensive renovation of the relatively young Renaud-Barrault Library in Avignon, Jakob + MacFarlane's (J+M) task was not only to repair degraded building fabric and adapt to new reading habits, but also redefine an institution in response to developments in the city beyond.

Avignon, located 50 miles from the south coast of France, has an ancient and picturesque heart, but the library stands in a low-income suburb some way outside the city's medieval ramparts, on a corner of a heavily trafficked highway, Rocade Charles de Gaulle. Designed in response to the fragmented landscape of 1970s housing projects, the 1985 building was composed as an asymmetric, village-like cluster. Facades of some upper stories incline inward, where the concrete structure was clad in blue metal. Single-glazed windows had a dense cross-hatching of bright green bars.

Standing outside the 27,000-square-foot library with Ali Elghouze, who acted as the city's representative for the renovation, he recalls its technical failings: leaks, lack of insulation, traffic noise, and little protection from the fierce summer sun. Equally significant was a decline in visitor numbers. In an area with a variety of social problems, the city believed that local people needed more encouragement to

A HONEYCOMB of bookshelves suggests a tree (right), creating a welcoming expression for a library located on a busy highway (opposite).



engage with the library. To do that, the building needed a more emphatic presence and welcoming expression.

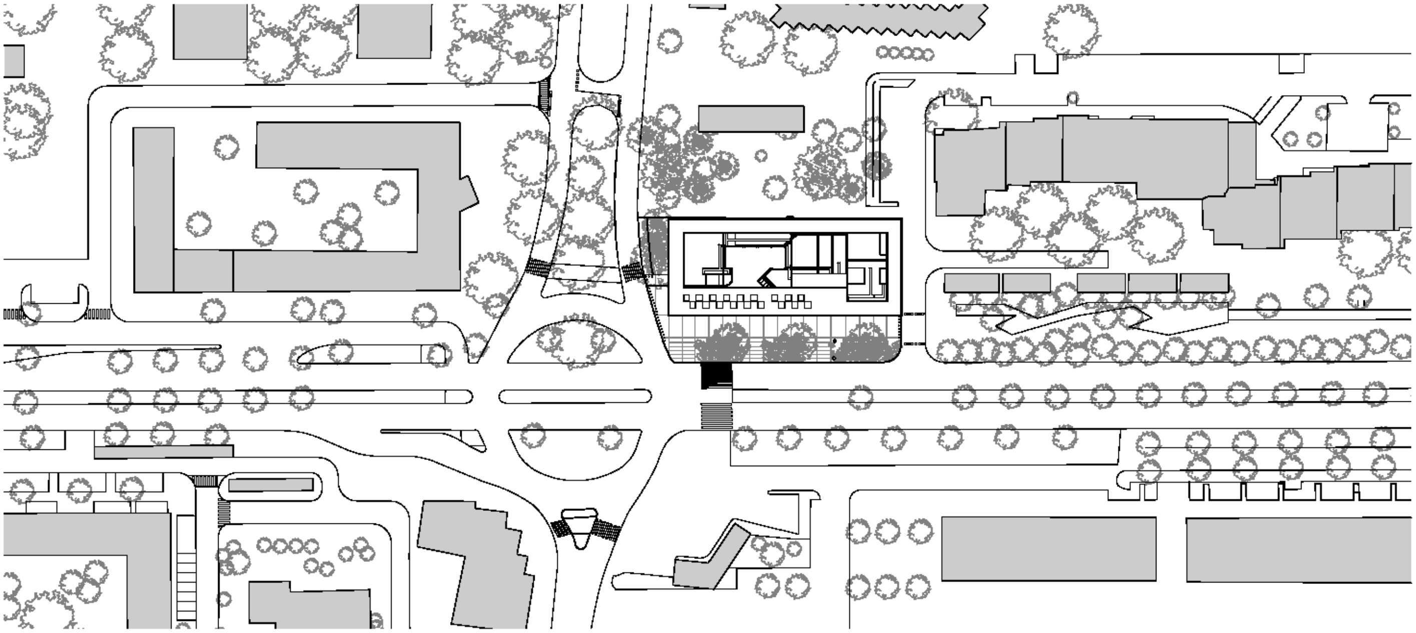
Together with a detailed program, those objectives formed the brief for a design competition. Alongside city officials, the jury included original architects Béatrice Douine and Jacques Prunis, now retired but still residing nearby. Their presence heightened awareness for Paris-based J+M that the proper approach to renewal should combine bold reinvention with respect. "The project needed to breathe new life into their building, but couldn't simply be a restoration," says Brendan MacFarlane, J+M cofounder with Dominique Jakob. "How could we work with some of the building's characteristics and achieve a true renaissance?"

His response was a symbolic sheltering tree—a metaphoric allusion to the simplest places for congregation and sharing knowledge, and a practical answer to many of the building's defects. As J+M's principal addition, the timber "tree" has a symbiotic relationship to the original concrete structure. Its trunk is a fluid honeycomb of plywood bookshelves that rises through the building from the full-height entrance foyer, wrapping around a retained elevator shaft. Its canopy is made of cross-laminated timber—an age-old material in contemporary form—and appears almost to float above the building's roof, touching lightly on the eaves despite its considerable size and weight. No additional reinforcement of the existing building was required. One advantage of working with older buildings, notes MacFarlane, is that they're often over-engineered, with inherent capacity for adaptation as well as proportions that would be harder to achieve today. Projecting up to 26 feet outward on all sides, the slender canopy shades windows and the sidewalk below. Plants and photovoltaics on top contribute to improved environmental performance.

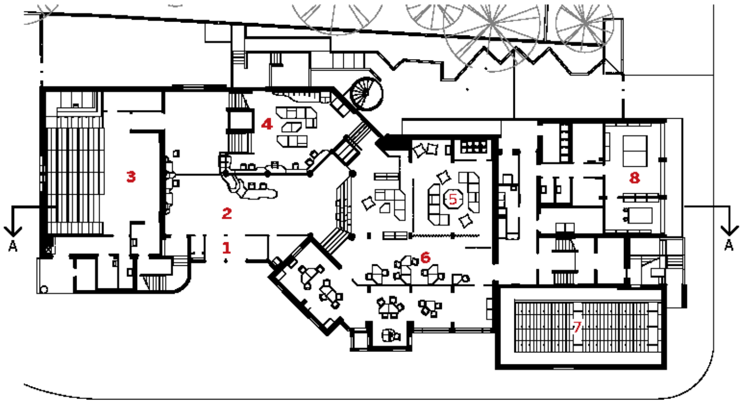
On approach, this eye-catching crown is the most evident sign of transformation, and its orthogonal outline lends a more ordered appearance to the informal jumble below. This reframing also allowed the architects to see the existing building in a more sympathetic light. "Finding a relationship with it took a while," says MacFarlane, "but when we conceived the roof as an organizing element for the whole site, the project took off."

Another consideration was that the building must now address a different urban context. A tramway is strengthening connections between the Rocade district and the city center, bringing new vitality, and a museum is planned on the site of a gas station across the street. The straight-edged part of the crown provides a useful foil for the museum's future architect and begins to frame a new neighborhood gateway.

Externally, the fussy windows were replaced with larger panes of double-glazing, and cladding was stripped from facades to expose the structure. While the areas always intended to be visible are carefully ribbed or boardmarked *béton brut*, newly revealed concrete is more workaday. Enjoying the contrast,



SITE PLAN



GROUND-FLOOR PLAN

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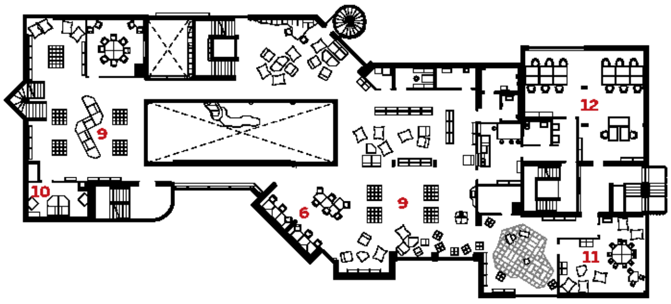

SECOND-FLOOR PLAN

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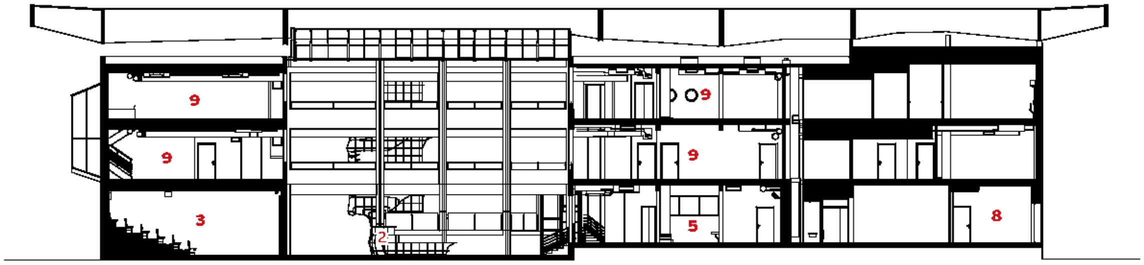

SECTION A - A

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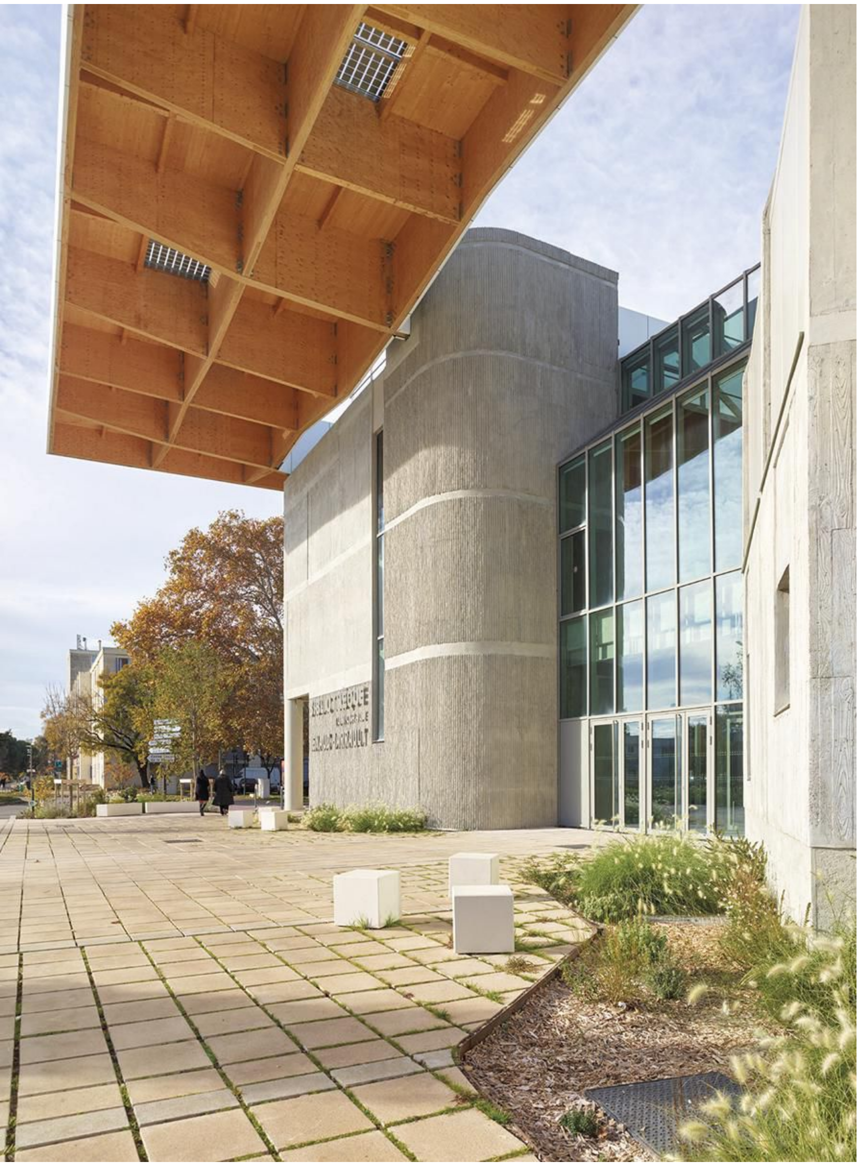
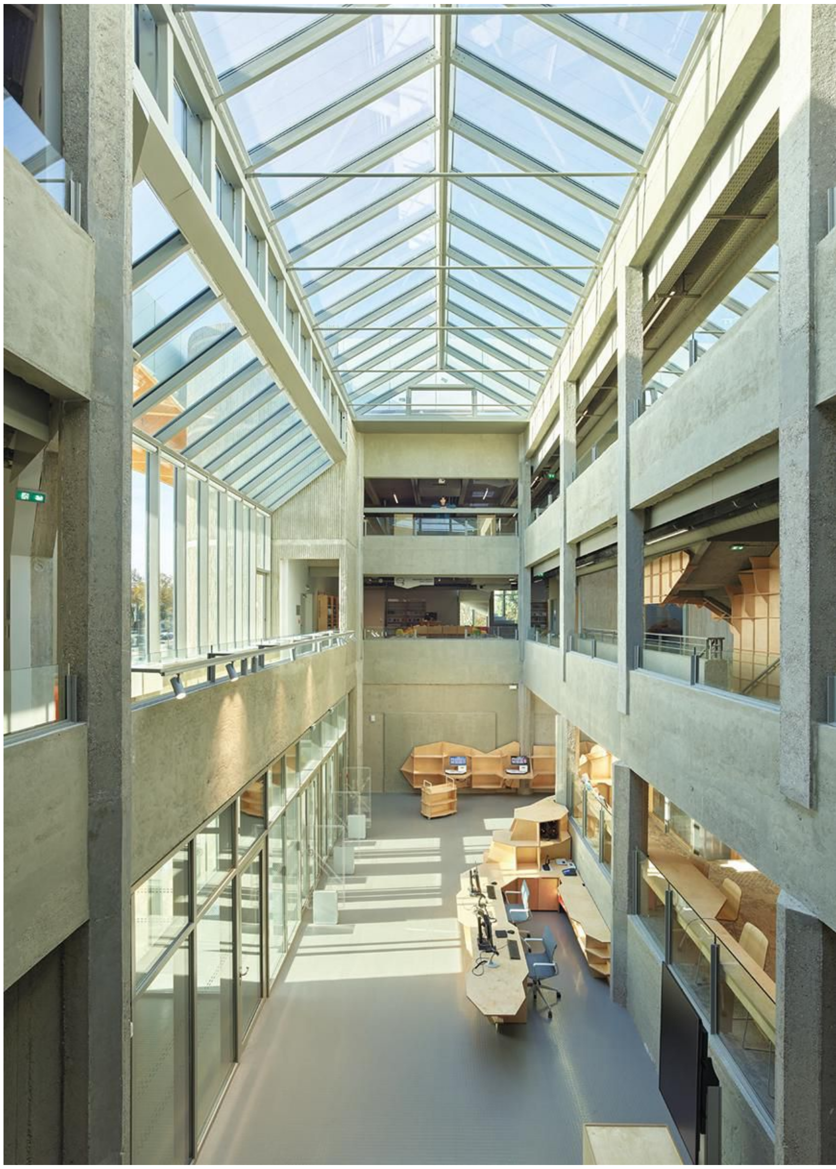
1 ENTRANCE
2 LOBBY
3 AUDITORIUM
4 COFFEE AREA
5 CONFERENCE ROOM
6 COMPUTER AREA
7 ARCHIVES
8 SORTING ROOM
9 COLLECTIONS
10 VIDEO GAME ROOM
11 CHILDREN'S ROOM
12 OFFICES



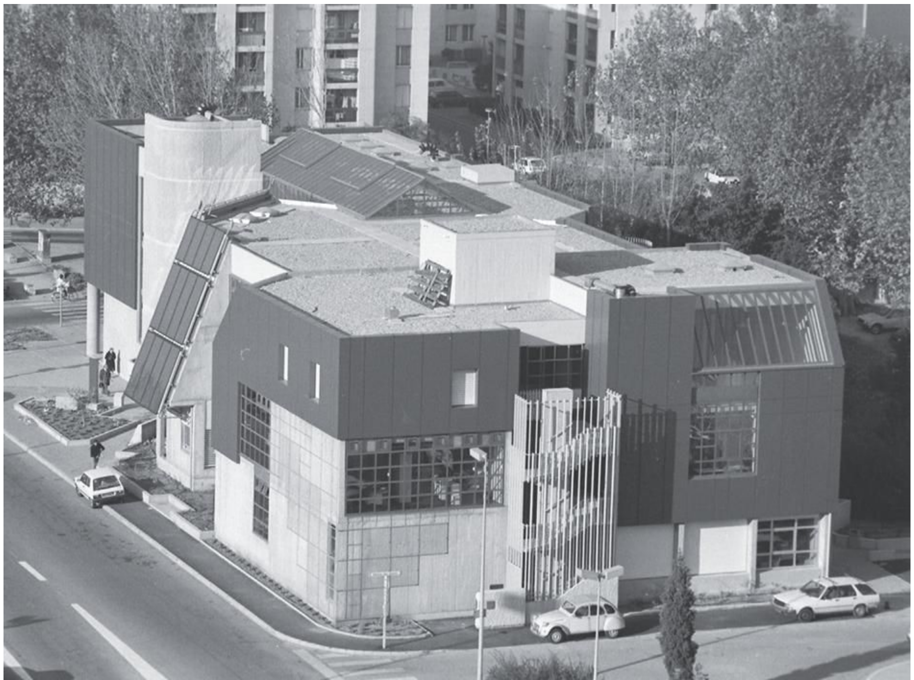


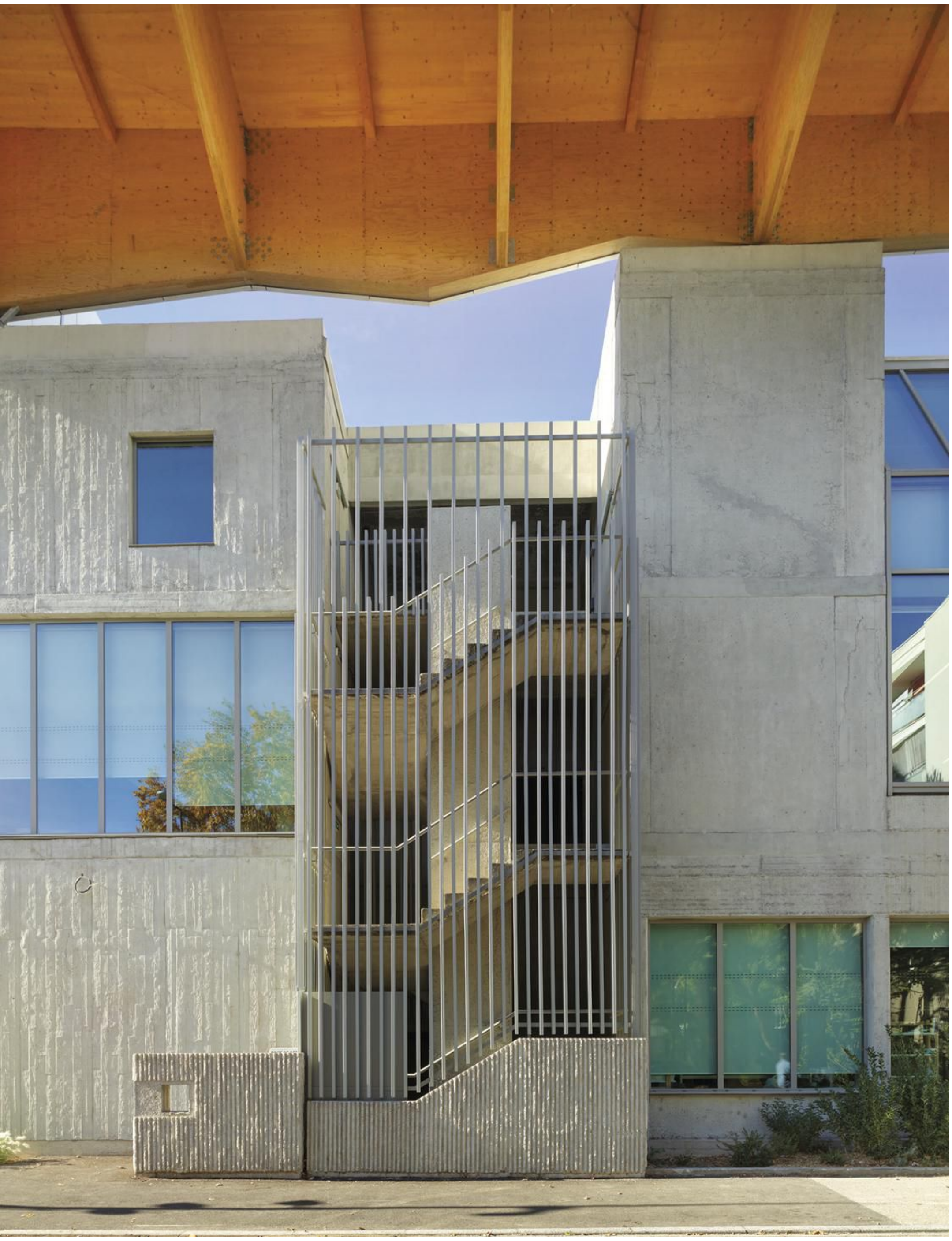
THE OLD LIBRARY (right) was made more inviting by the addition of an exterior crown (above) and enlarged windows (above, right).

PHOTOGRAPHY: © JEAN-PIERRE CAMPOMAR/ARCHIVES VILLE D'AVIGNON

J+M was determined to keep necessary insulation to the inner face of the walls. The single facade material now gives the library a calmer, more civic character. One might even see a similarity to the monolithic limestone buildings of the city center, from the Papal palace to the Pont d'Avignon.

Concrete has also been exposed throughout the interiors, which were previously lined or painted. Here, again, scarred surfaces are preserved, with only limited repair after sandblasting—"Not so little that it would look bad," says MacFarlane, "but not so much that it would look precious." Such imperfections lend a dis-





STRIPPING away exterior cladding (left) and interior paint (opposite) exposed the library's concrete to create a calmer, more civic space.

tinctive identity, but they were a hard sell. "Citizens want to see where the investment has gone," says Elghouze. "We had a lot of discussions before Brendan convinced us."

Its stark character is further celebrated in the selection of complementary finishes that nevertheless introduce a sense of comfort. A foamy gray acoustic treatment has been applied to ceilings, while floors are covered in gray carpet patterned to resemble concrete.

More warmth comes from the amorphous plywood matrix of the "tree trunk," which acts as book storage and is visible from most parts of the library. The material has an economy demanded by the $8.25 million budget, and its use adds a vital dose of delight. "You need some surprise or magic to get people into a building and wanting to spend time there," says MacFarlane. "Simply sandblasting old concrete wasn't going to do that."

Plywood also forms freestanding custom-made bookcases. Books take center stage on every floor, but the remodeled library also has facilities intended to draw in diverse audiences. A wood-lined auditorium can be accessed independently of the library for after-hours events. A mezzanine overlooking the foyer invites passersby to stop for a coffee. Small kitchens encourage community gatherings. On the upper levels, rooms for computer use and video games are separated from the stacks by glass screens.

Arrangement of the loose furniture within the open-plan spaces was debated at length and tested at one-to-one scale using projected light in a local warehouse. J+M designed everything, from a kids' playhouse to large, soft chairs in warm yellow and zesty green and orange. The bright colors recur in the architects' work but here represent the leaves of the tree through the seasons. Throughout the building, these elements are recomposed to form subtly different spaces tailored to suit a spectrum of users, from adults to preschoolers or teenagers dropping in with homework.

Walking through the library, long views made possible by removal of partitions allow all of this activity to be taken in at once, along with once-hidden qualities of the building—a state of happy coexistence in an environment that is both relaxed and monumental. "A month after reopening, there are plenty of people coming in," says Elghouze. The tree is already bearing fruit. ■

Credits

ARCHITECT: Jakob + MacFarlane

ENGINEERS: TPF Ingénierie (concrete structure and HVAC); Gustave Ingénieur du Bois (wood structure); Cabinet Conseil Vincent Hédont (acoustical)

CLIENT: City of Avignon

SIZE: 27,000 square feet

COST: $8.25 million (construction)

COMPLETION DATE: October 2024

Sources

CURTAIN WALL/WINDOWS: Wicona

METAL PANELS: Alucobond, Vetisol

DOORS: Doortal (metal); Polytech (wood)

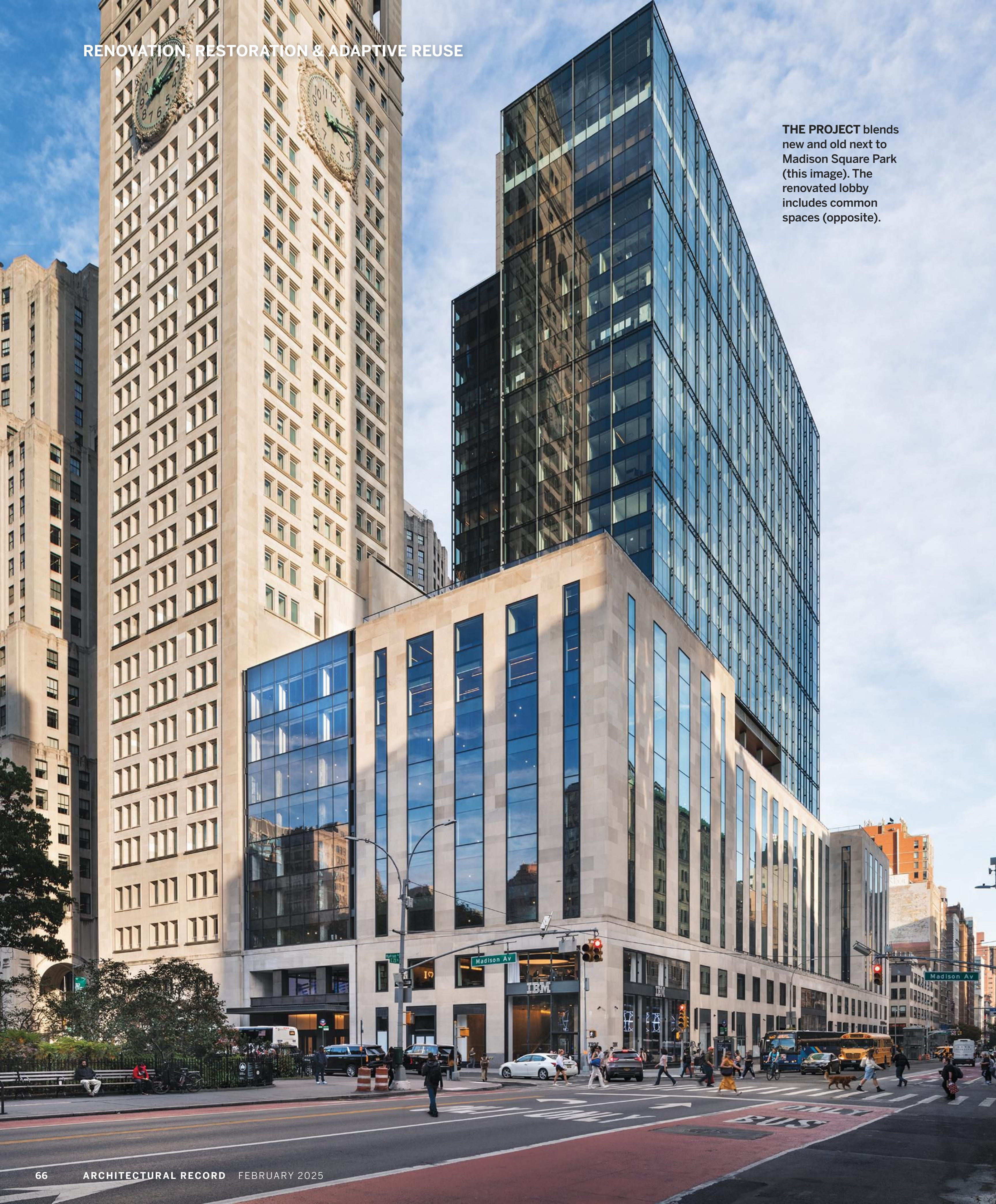
GLAZING: Saint-Gobain

ACOUSTICAL CEILINGS: Asona

HARDWARE: Legallais, Assa Abloy, Behar

LIGHTING: Philips

AUTOMATIQUE


Madison Av
IBM
Madison Av
BUS ONLY

THE PROJECT blends new and old next to Madison Square Park (this image). The renovated lobby includes common spaces (opposite).

ONE MADISON AVENUE | NEW YORK | KOHN PEDERSEN FOX

Down to the Core

KPF overhauls an aging commercial building with a new tower, revamped office space, and amenities.

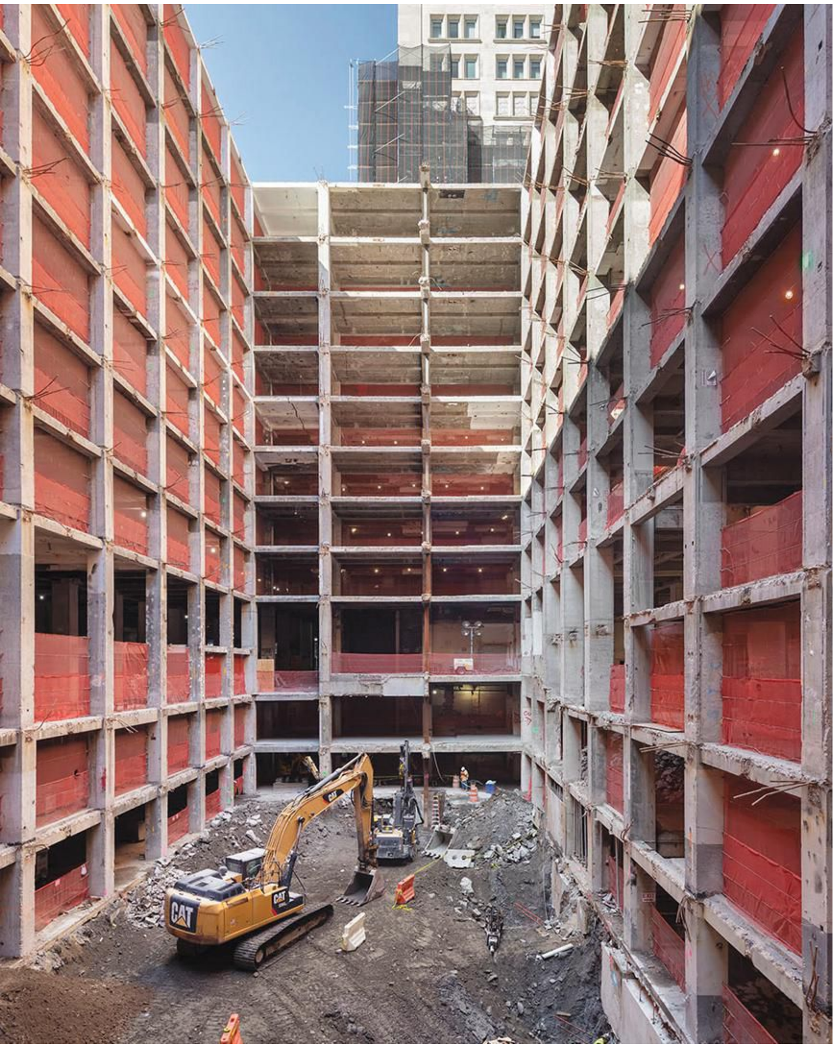
BY MATTHEW MARANI

PHOTOGRAPHY: © RAIMUND KOCH (EXCEPT AS NOTED); KEVIN CHU + JESSICA PAUL (TOP)

NEW YORK CITY'S commercial real estate is facing an inflection point. Formalized remote-work policies have sustained a downward spiral for Class B and C office buildings—those with fewer amenities or located in less desirable spots. Average vacancy rates have risen from just under 10 percent in 2020 to approximately 20 percent today. In contrast, demand for newer Class A office space has stabilized and even grown in recent years. That leaves developers with few options. They could unload office buildings at fire-sale rates, invest in capital-intensive office-to-residential conversions, or commit to wholesale renovations of commercial properties into top-tier office space.

One Madison Avenue, designed by Kohn Pedersen Fox Associates (KPF) for SL Green Realty and Hines, follows the latter course. The existing 14-story structure, completed in 1958 and composed of a nine-story podium with a wedding cake of setbacks above, was an annex for the landmarked Napoleon LeBrun–designed Metropolitan Life Insurance Company Tower (1909) next door (which was converted into a hotel in 2015). SL Green bought the annex in 2005. It was completely occupied by Credit Suisse, which, after the sale, renewed a 15-year lease. But the investment bank restructured following the global financial crisis in 2008 and decided to decamp in 2017, vacating in 2020. That left the developer with an empty 1.1 million-square-foot office building facing Manhattan's enviable Madison Square Park.

In 2018, a trio of KPF, structural engineer Severud Associates, and contractor AECOM Tishman won the design competition to reenvision the property. The team—who had already worked together at One Vanderbilt (2020) uptown, another SL Green property—proposed several courses of action, ranging from a simple refurbishment to an entirely new tower on-site. But the building's 90,000-square-foot floor plates, which span a full city block, were an asset worth retaining. "The plan that won the day, from an economic perspective, was to maintain and reimagine the nine podium floors and build a new, modern tower above," says Robert Schiffer, SL Green executive vice president.

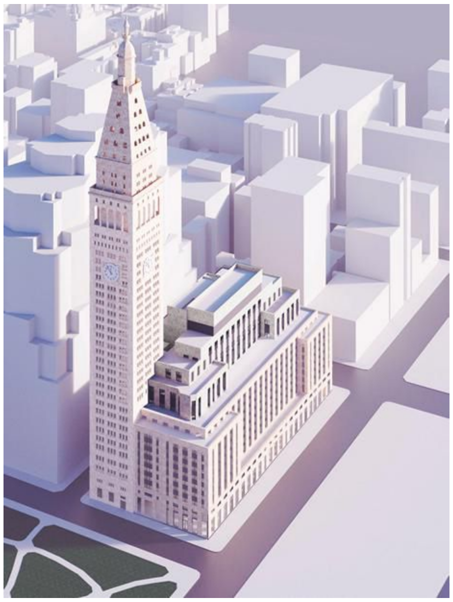


Construction began in 2020; the addition of an 18-story tower atop the podium required demolishing the existing building core at the center of the block-long floor plate down to bedrock and pouring an entirely new concrete shear core in its place. Each floor within the podium is studded with a tight grid of columns. The design team studied removing every other column across each level, but low floor-to-floor heights of just 10 feet provided insufficient room for transfer-load interventions. Instead, across each floor, nine of the existing columns were strengthened with reinforced concrete, and four more were added to support the vertical load of the tower above. Some, referred to as "jumbo columns," are 5 square feet.

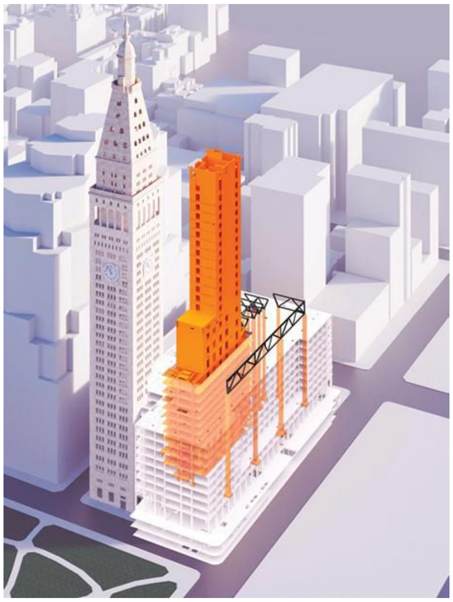
"One of the initial concepts proposed reinforcing hundreds of columns and beams across the podium," says Andrew Werner, KPF senior associate principal. "But our discussions with Severud determined that a new building core would solve many of our load issues." As he explains, it also freed up space for Class A commercial infrastructure: larger elevator banks, and improved lighting, mechanical, and electrical systems.

Existing 4-inch-thick Alabama limestone cladding was cleaned and repaired where possible, and the design team sourced infill stone as needed from the original quarry. The small punched windows of the original facade—inefficient and not up to New York's energy code—were replaced with a new double-glazed and unitized curtain wall system. At the spandrels, exterior crenellated steel facing was swapped out for painted aluminum placed behind the glazing. To announce the primary entrance, on Madison Avenue, three structural bays were stripped of limestone, to be replaced with a similar curtain wall treatment.

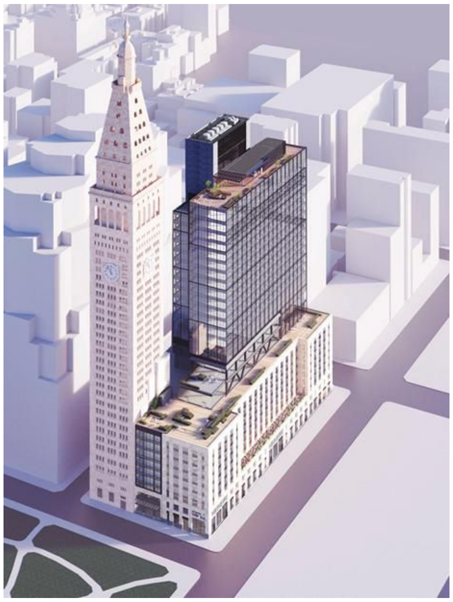
The tower rises at a 124-foot setback from the podium, facing Madison Avenue, with the new building core at its rear, north-facing elevation. The transition from old to new is delineated at the 10th floor by an expansive terrace overlooking Madison Square Park, and, inside, by two levels of double-height spaces wrapped in triple and quadruple-laminated ultra-clear glass sheets of monolithic scale. There, the steel structural system of the addition is made wholly visible in the form of gargantuan, fiberglass-clad steel trusses that transfer the gravity load of the addition to the column grid below. Those structural decisions,



EXISTING CONDITIONS



ADDITION OF TOWER CORE AND TRUSSES



COMPLETED BUILDING

THE CORE was excavated down to bedrock (opposite). A Rockwell Group–designed amenity space (above) and restaurant (right).

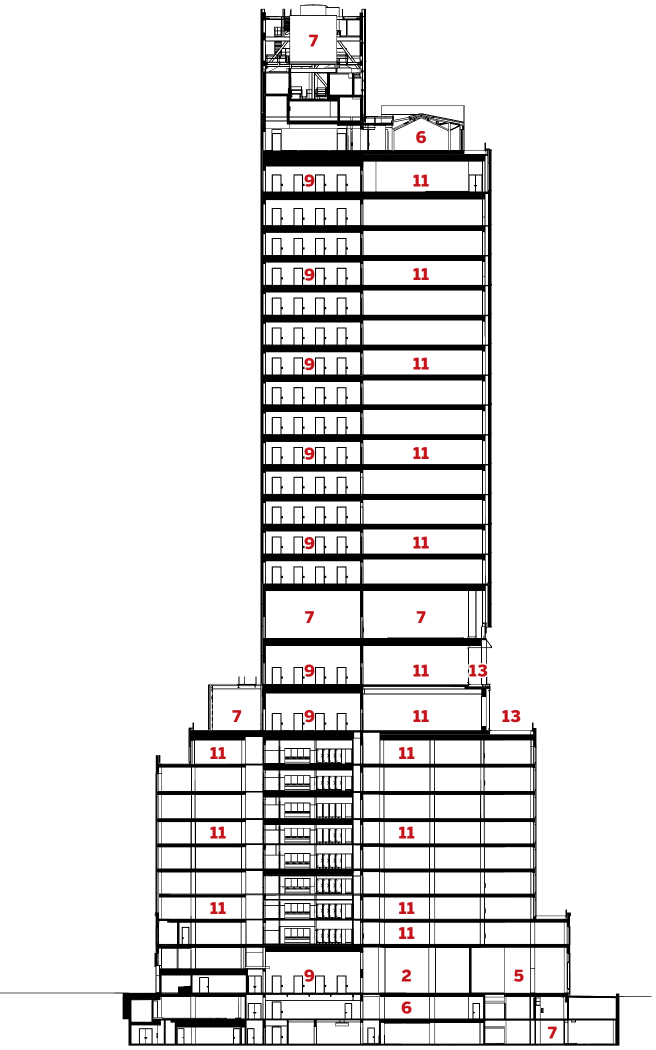
PHOTOGRAPHY: © JASON VARNEY (BOTTOM); ADRIAN GAUT (TOP)

positioning the building core to the flank of the tower and transferring the addition's vertical load through the trusses, allowed for 60-foot, column-free spans from the 12th floor upward. Further contrasting the addition to the stone-clad podium and the Metropolitan Life tower are dark gunmetal fileted frames running vertically every 15 feet and horizontally at every third floor.

The mechanical systems of the annex and the Metropolitan Life tower are shared, and services had to be maintained through each stage of construction. The design team first had to install a temporary mechanical room on the eighth floor of the podium and cooling towers on the podium roof, ducts and pipes snaking between the two buildings, prior to dismantling the mechanical infrastructure embedded within a portion of the five uppermost annex floors to be demolished.

To complicate the project further, the New York City Landmarks Preservation Commission required that any areas of the listed Metropolitan Life tower exposed by One Madison Avenue's partial demolition must be covered up later, in kind. Once the new system was in place—cooling towers located at the building's summit, a mechanical plant on the north side of the 10th floor—the design team conducted a hot cut, rerouting the ducts and pipes within a tight time frame. The bare wall where the systems and the landmarked tower meet was then clad in the same Alabama limestone. "There was an element of open-heart surgery here, managing the mechanical system while deconstructing the building, all while coordinating with a multitude of city agencies," explains Werner. "It was an unorthodox process, and we had to walk the Department of Buildings through what was essentially continuous deconstruction and reconstruction."

Amenities are crucial to Class A commercial development, and One Madison Avenue includes several spaces for them. At the rooftop, Le Jardin sur Madison, a 6,800-square-foot pavilion designed by Rockwell Group, clad in a limestone-like concrete rainscreen, welcomes tenants with a wood-paneled ceiling, lush furnishings, and sinuous steelwork, and a 5,000-square-foot landscaped terrace. La Tête d'Or, a Daniel Boulud steakhouse, also by Rockwell, located at the ground floor's northeast corner, welcomes the public into the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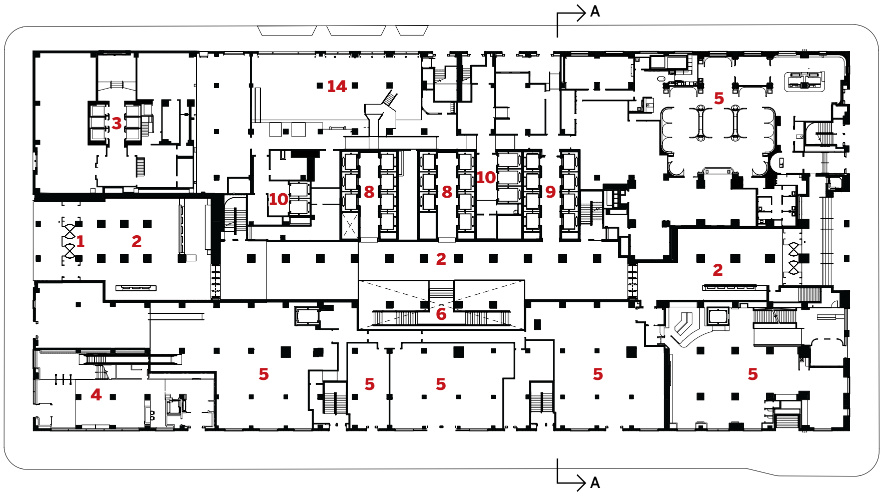
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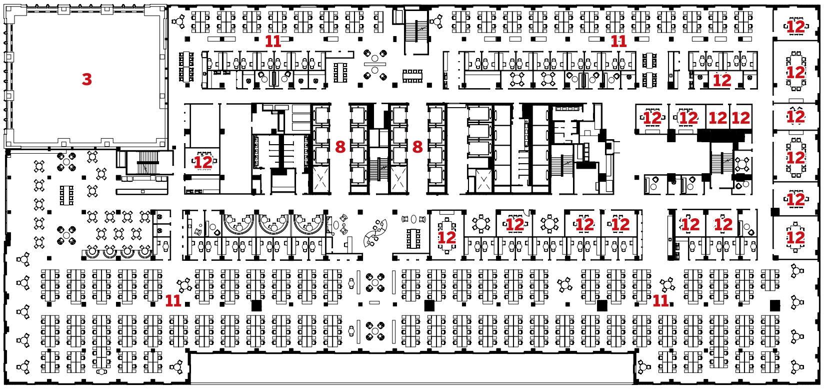
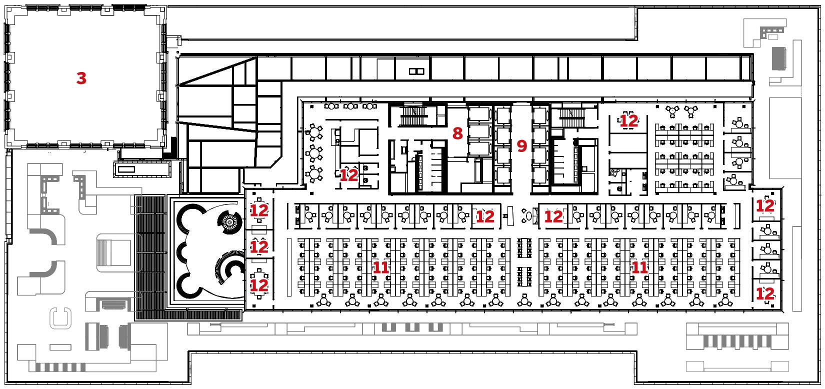
GROUND-FLOOR PLAN



PODIUM-FLOOR PLAN

1	ENTRANCE
2	LOBBY
3	CLOCK TOWER
4	ANCHOR-TENANT-DEDICATED LOBBY
5	RESTAURANT/RETAIL TENANT
6	AMENITY SPACE
7	MECHANICAL
8	PODIUM-ELEVATOR BAY
9	TOWER-ELEVATOR BAY
10	SERVICE-ELEVATOR BAY
11	OFFICE
12	MEETING ROOM
13	TERRACE
14	LOADING DOCK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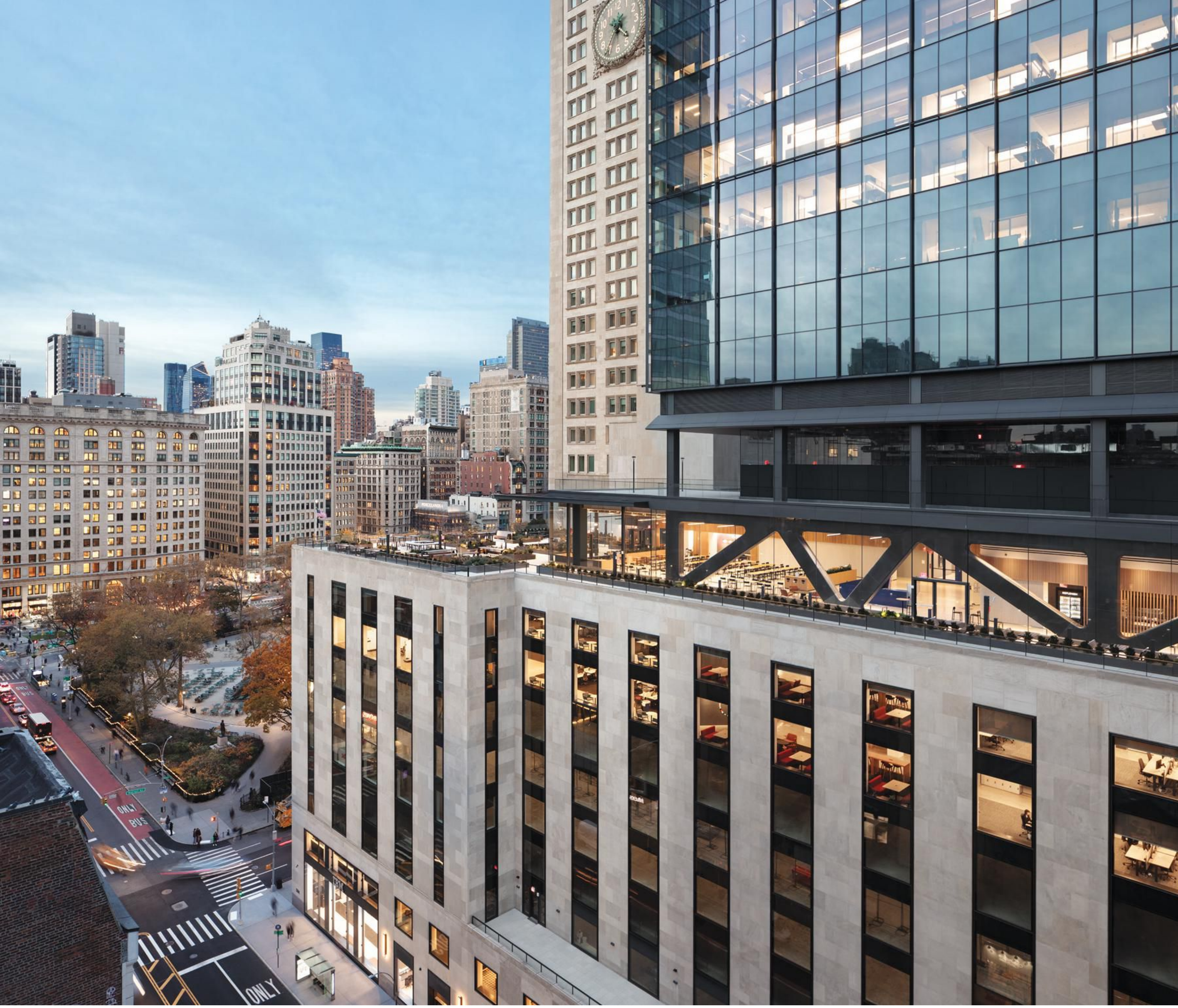
TOWER-FLOOR PLAN



THE TOWER SETBACK makes room for a landscaped terrace, and its steel trusses transfer vertical load to the podium (above).

building with a brasserie-inspired design that features marble and walnut flooring, fabric walls, and glass pendants. In the lobby, and below grade, the 7,000-square-foot Commons, designed by Vocon, is a shared tenant space offering both lunchtime catering and meeting spaces.

One Madison Avenue substantially reached completion in fall 2023, some three months ahead of schedule; with anchor tenants like IBM, Franklin Templeton, and Coinbase, it is over 70 percent leased. New York's commercial real-estate market still faces substantial headwinds, but the adroit renovation in Madison Square is a success story in a city hungry for one. And it could provide a road map for the effective repositioning of similar properties across the metropolis. ■

Credits

ARCHITECT: KPF — Lloyd Sigal, FAIA, managing principal; Doug Hocking, design principal; Andrew Werner, project manager; Annie Savage, senior designer, Christopher Popa, senior technical designer; Chandler Archbell, project architect

ENGINEERS: Severud Associates Consulting Engineers (structural); JB&B (m/e/p); Langan Engineering (civil); GMS (building envelope)

CONSULTANTS: Rockwell Group and Vocon (amenity spaces); Fried Frank & Development Consulting Services (zoning); Higgins Quasebarth and Partners and Walter B Melvin (landmarks and preservation); Vidaris (LEED + Energy)

GENERAL CONTRACTOR: AECOM Tishman

CLIENT: SL Green Realty Corporation, Hines

SIZE: 1.33 million square feet

COST: $2.3 billion

COMPLETION DATE: December 2024

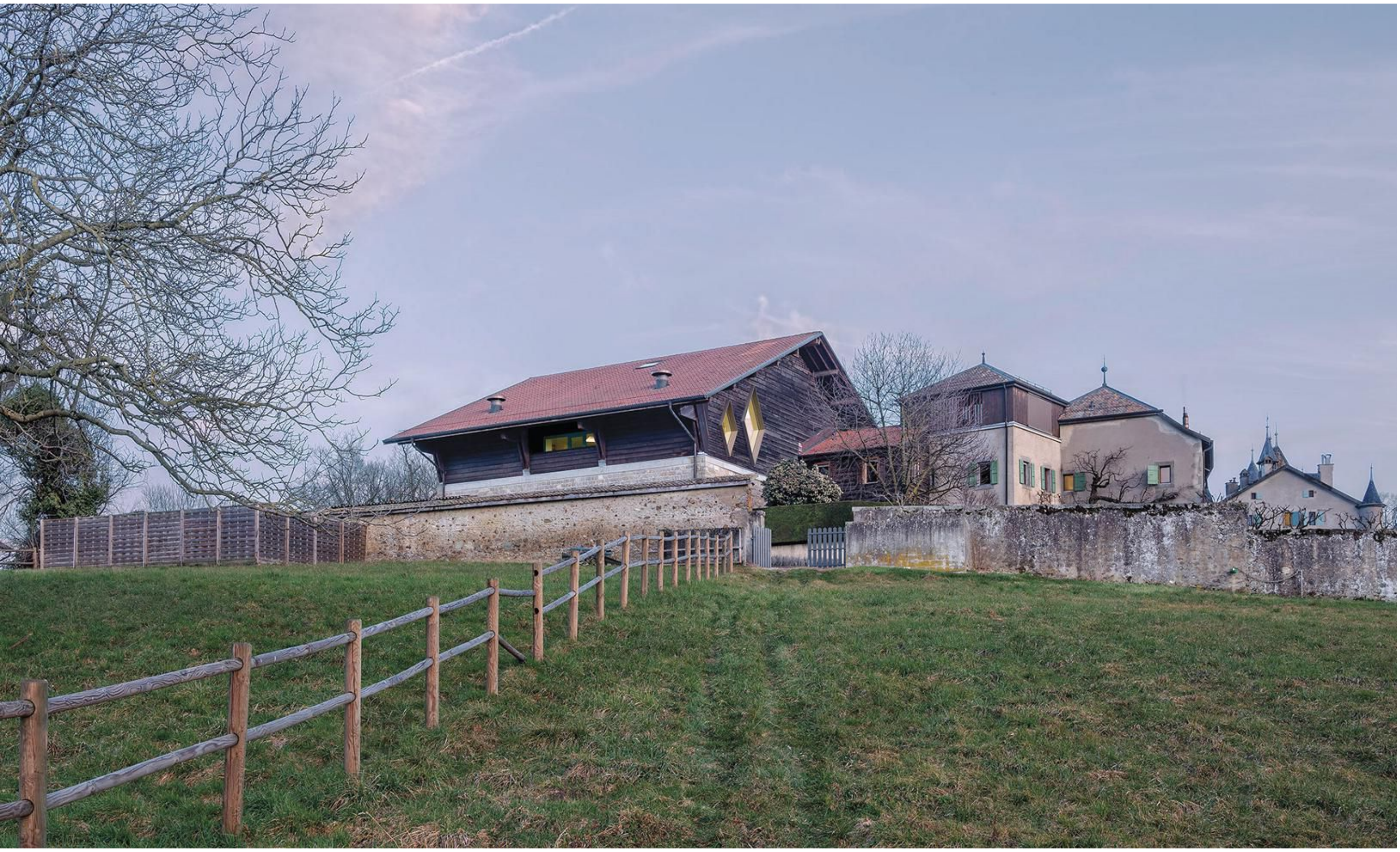
Sources

MASONRY: Vetter Stone

GLASS: Interpane, Sedak

CONVEYANCE: Schindler Elevators

PLUMBING: Toto (toilets); Zurn (faucets); Hadrian & Venesta (partitions)



COLLECTION DU CREST | JUSSY, SWITZERLAND | PICTET BROILLET ARCHITECTES

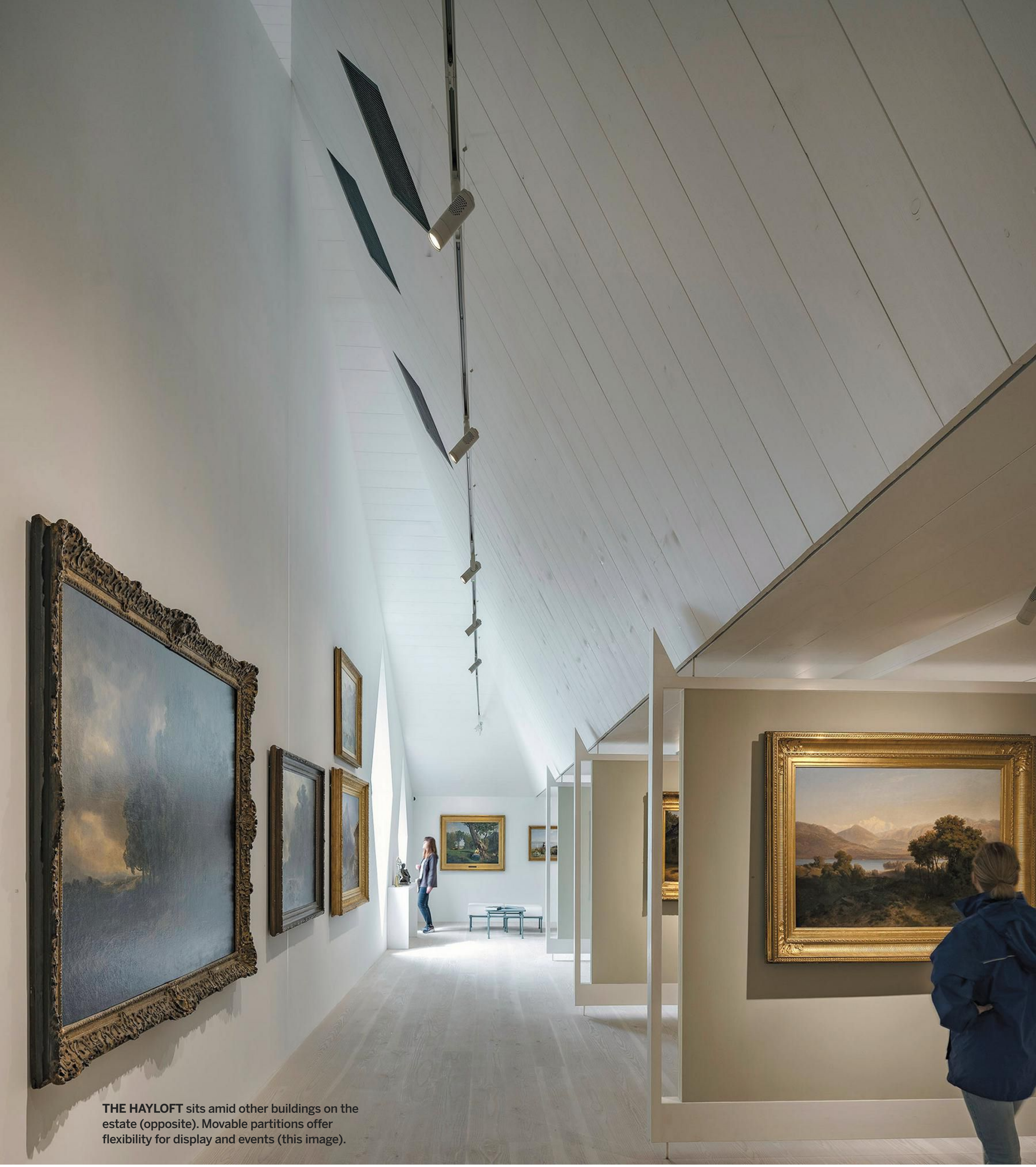
Room to Roost

A Swiss practice transforms a hayloft into a sophisticated museum for a private painting collection.

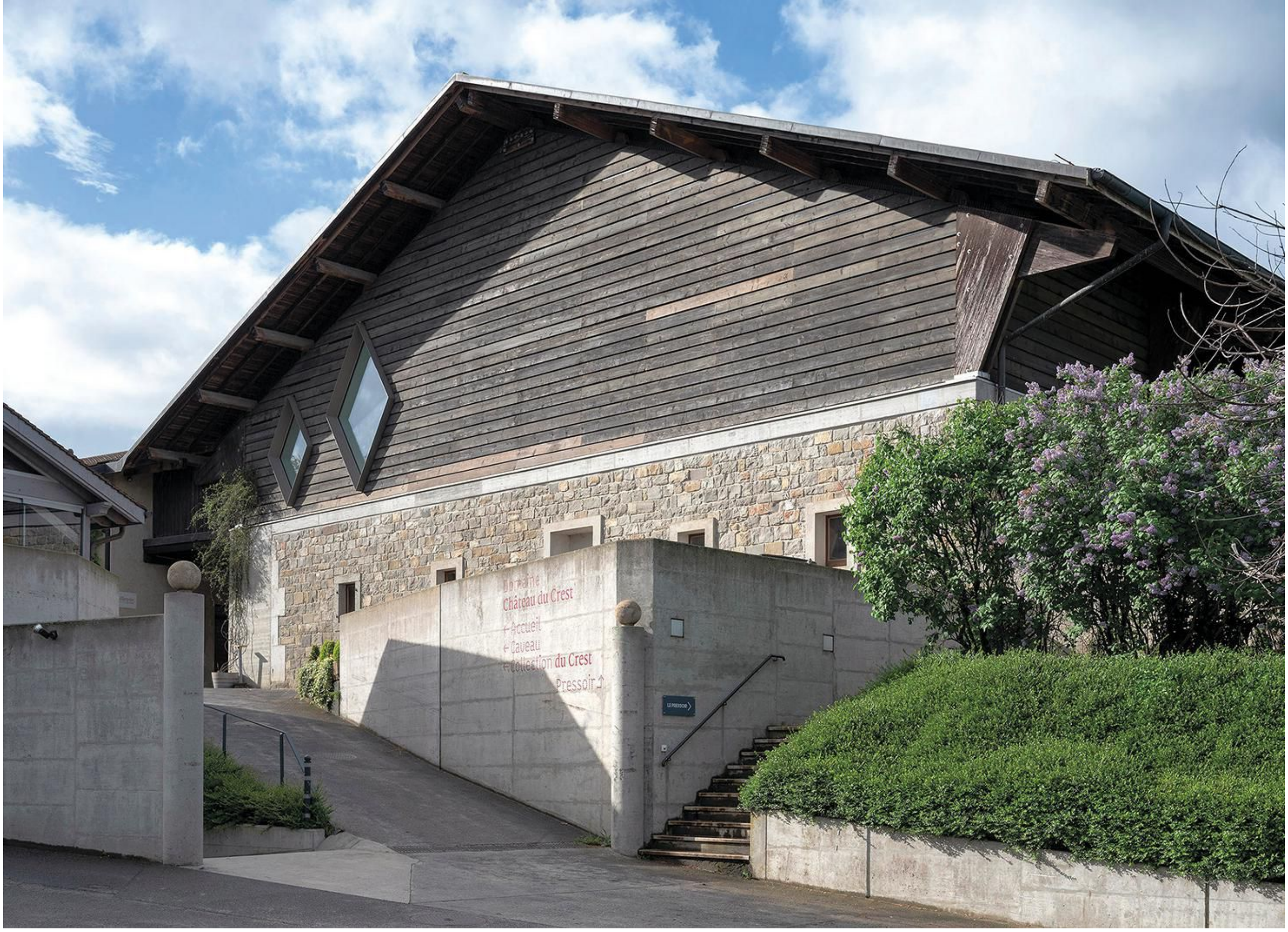
BY ANDREW AYERS
PHOTOGRAPHY BY DUCCIO MALAGAMBA

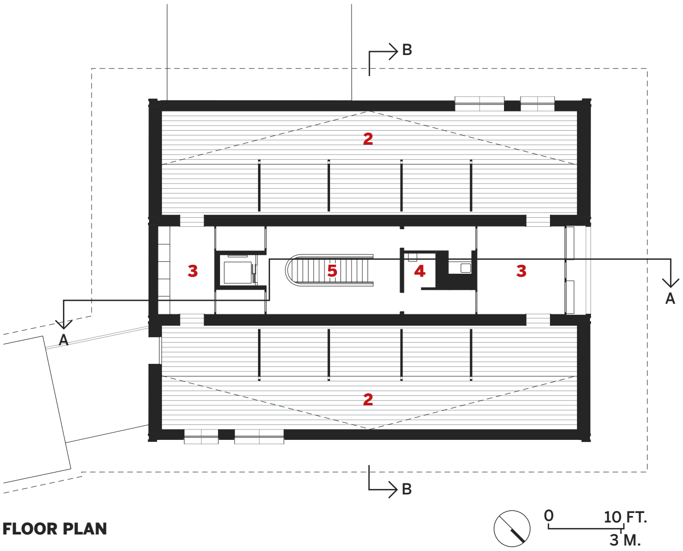
PERCHED ON A SPUR in rolling countryside northeast of Geneva, the 17th-century Château du Crest is a fortified manor house bristling with turrets and pointed roofs. Bought by the Micheli family in 1637, the estate comprises a large farm, today famed for its wine and its pork products. Besides managing his legacy, the current chatelain, 87-year-old Yves Micheli, has spent his life collecting pictures—in particular, landscapes—painted by members of the Geneva school or by artists associated with the city. In the late 2010s, looking to ensure the future of his collection, which counts around 300 works, he set up a foundation and charged architect Charles Pictet, of Geneva-based office Pictet + Broillet, with converting a disused hayloft to display them. Curated by art historians, the museum is open to the public two days a week, and continues to acquire works to strengthen its holdings, which span the period 1720 to 1970.

"To a certain extent, it was up to me to invent the program," recalls Pictet of the commission. Located in the farmyard next to the château, the timber hayloft occupied the second level of a 19th-century stone cow barn that had been rebuilt after a major fire in 1989. With its concrete-block and rubble-stone walls, dark timber siding, and deep eaves, the building is the picture of idyllic rusticity. While its ground floor now accommodates wine bottling and farm-related storage, "all you saw upstairs was a huge void rising into the rafters, with the undersides of the roof tiles exposed," as Pictet remembers. His first challenge was to get visitors up to the new museum. Located



THE HAYLOFT sits amid other buildings on the estate (opposite). Movable partitions offer flexibility for display and events (this image).


Domaine
Château du Crest
←Accueil
←Caveau
←Collection du Crest
Pressoir↑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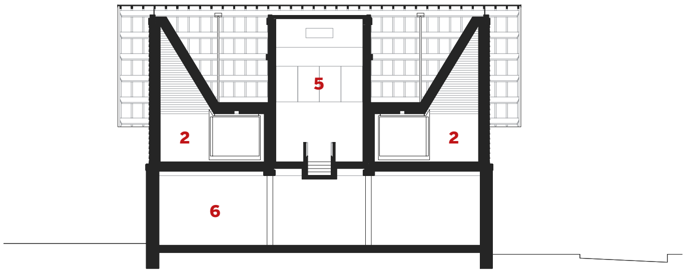
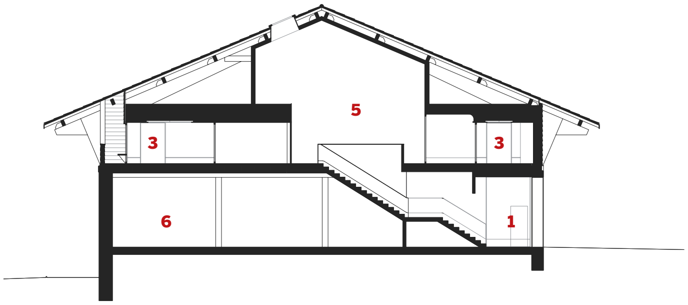
FLOOR PLAN

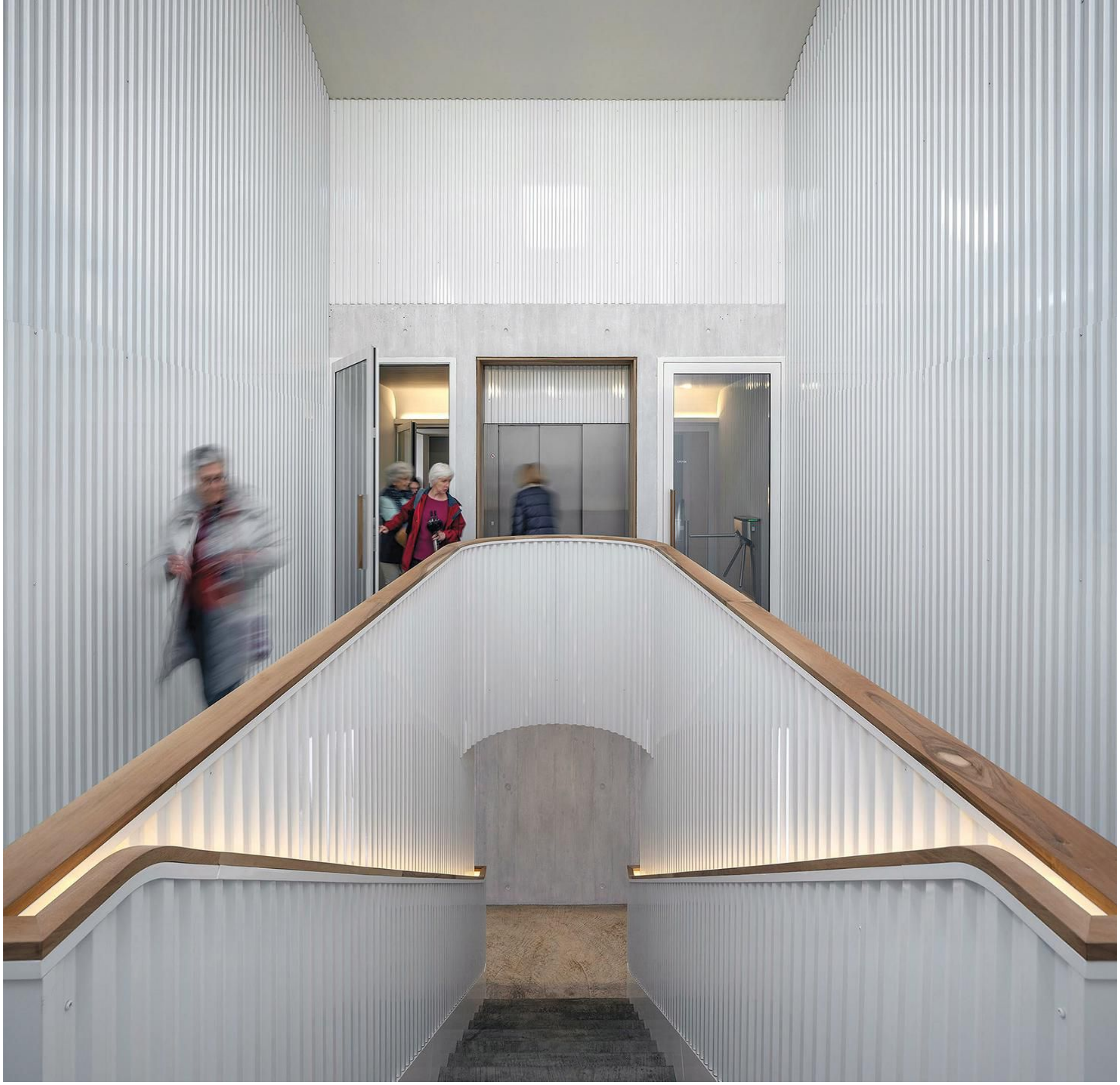


SECTION B - B



SECTION A - A

1	VESTIBULE
2	GALLERY
3	ANTECHAMBER
4	RESTROOM
5	STAIRWELL
6	STORAGE

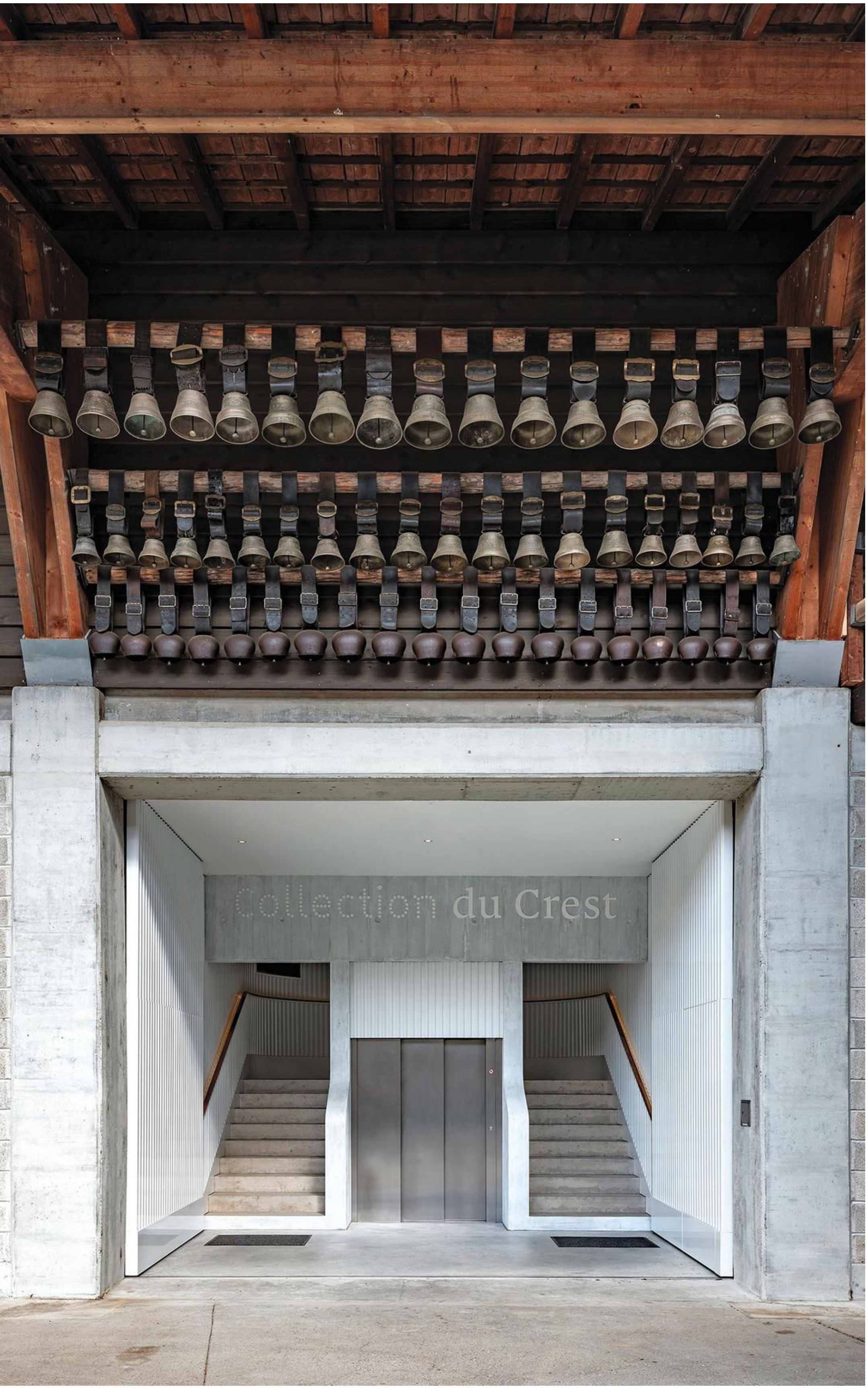


CORRUGATED sheet metal lines the stairwell (above). Lozenge-shaped apertures punctuate the facade (opposite).

in the farmyard, at the center of the barn's shorter, eastern side, the entrance is surmounted by serried rows of cowbells, and takes the form of a generous vestibule, at whose rear rise a stair and elevator (in concrete, to satisfy fire regulations). Fitted with wood doors that swing back flush with its lateral walls, the vestibule remains entirely open to the outside during museum hours. In a nod to context, the doors' internal surfaces, along with most of the stairwell, are faced with the same corrugated white-metal siding used for the farm's wine-refrigeration sheds.

Rising to the apex of the barn's roof, the lofty stairwell receives daylight from an opening at its summit, encouraging visitors to move upward. In contrast, past the turnstile on the landing, a windowless, low-ceilinged antechamber greets them in the museum proper, fitted out with bespoke coat-check closets. This sequence of alternating expansion and contraction continues as visitors proceed into the soaring volume of the first gallery, which runs down the hayloft's gable wall on its longer, southern side. Contrary to expectation, the gallery ceiling slopes sharply downward from the gable's apex, before flattening out to form a low, partition-filled aisle. "Given its huge size, the barn's roof would have been very costly to redo, so I sought a way of leaving the envelope intact," explains Pictet with respect to the dropped ceiling, which, insulated to stringent Swiss standards, dissimulates museum-grade HVAC in the void above it.

Pictures hang on both the perimeter walls and the partitions; suspended from the flat ceiling, the latter can slide up and down the length of the gallery. "By moving them close, you have an intimate *cabinet de dessins*; widening the gap, you obtain a space for landscapes or portraits; and by pushing them all to one end, you open up the gallery for concerts or lectures," says Pictet of this flexible system. Once again, daylight draws visitors forward, this time thanks to a pair of full-height lozenge-shaped windows at the far end. "While the reconstructed barn had no particular story to tell, it offered exceptional views across the landscape, which is to some extent the subject



SERRIED rows of hanging cowbells announce the entrance and main stairwell leading to the Collection du Crest.

of this museum," explains Pictet, who deliberately delayed this encounter with the exterior to preserve contemplation of the paintings. "On arriving at the windows, visitors find themselves framed in the landscape itself," says the architect. Outside, the diamond openings echo the château's pointy silhouette, serving to indicate that this is no ordinary barn, while, inside, they become something of a leitmotif, since the HVAC vents and ceiling recesses for concealed lighting are also diamond-shaped.

Contraction and expansion continue when passing from the south gallery to the north, since visitors traverse a low space at the barn's western end that gives onto a balcony. On the opposite wall, a screen shows videos and information about the collection, with a small kitchen and stockroom tucked away behind. Although the north gallery is essentially identical to the south, the atmosphere is different, partly due to the colder light but also to a change in color: *eau de Nil* in the south gallery, the partitions are gray-beige in the north. "These pictures were made for homes, so I didn't want a white cube," explains Pictet. "I aimed for both a domestic scale and a spatial generosity and pleasure." Materials (natural fir floors, white-painted wood ceilings) and detailing (the alternate orientation of closet handles, triangular "acroteria" on the partitions) reflect a certain "pursuit of sensuality" in a simple yet sophisticated interior. "This is a little, provincial museum, but I wanted people to remember it," says Pictet, and the sense of place, at once delightful and idiosyncratic, is indeed palpable. ■

Credits

ARCHITECT: Pictet + Broillet Architectes — Charles Pictet, Baptiste Broillet, partners; Daniel Gibbons, director; Henri Favre, project manager

ENGINEER: B.Ott et C.Uldry SARL (structural)

CLIENT: Fondation Musée du Crest

SIZE: 4,790 square feet

COST: $4.28 million

COMPLETION DATE: November 2023

Sources

MASONRY: D'Orlando

CURTAIN WALL/WINDOWS: Serrurerie 2000

DOORS: Dasta

INTERIOR FINISHES: Ateliers Quetzal (paints/stains); Parquets Plus (tile)

LIGHTING: Erco (downlights)

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Record Houses 2025

The editors of *Architectural Record* are now accepting entries for **RECORD HOUSES**. This annual issue showcases residential design that upends expectation, pushes disciplinary limits, and redefines established vocabularies in imaginative ways.

Winning projects will be selected by an editorial jury and featured in September.

DEADLINE TO SUBMIT: MAY 15, 2025

For submission details, visit architecturalrecord.com/call4entries

E-mail any questions to ARCallForEntries@bnpmedia.com. Include “Record Houses” in the subject line.

STEEPLECHASE HOUSE IN HILLSBOROUGH, NORTH CAROLINA, BY BROOKS + SCARPA.

PHOTOGRAPHY: © MARK HERBOTH

CEU

Sustainability in Practice

This special section highlights materials, design approaches, research, and technologies that can reduce carbon footprints across scales and typologies from office towers to infrastructure.

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Ontario | Bucholz McEvoy Architects + ZAS Architects

86 Piraeus Tower Reclad
Greece | Pila Studio

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Spain | FRPO Rodriguez & Oriol

94 Shenzhen Energy Ring
China | Schmidt Hammer Lassen

CONTINUING EDUCATION

To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read the "Sustainability in Practice" section on pages 80 to 97 and complete the quiz at architecturalrecord.com. Upon passing the test, you will receive a certificate of completion, and your credit will be automatically reported to the AIA. Additional information regarding credit-reporting and continuing-education requirements can be found at continuingeducation.bnpmedia.com.

Learning Objectives

1 Discuss architecturally distinctive plants for generating heating, cooling, and electricity, and the pros and cons of the alternative energy technologies they house.

2 Explain technical practices and strategies behind successful adaptive-reuse and retrofit projects, especially as they relate to high-rise structures.

3 Describe design principles that can reduce embodied carbon, improve building performance, and enhance occupant comfort.

4 Investigate the specification of reused or upcycled steel components, and their suitability for new projects.

AIA/CES Course #K2502A

DH PALENCIA IN SPAIN BY FRPO RODRIGUEZ & ORIOL

PHOTOGRAPHY: © LUIS ASÍN

TORONTO AND REGION CONSERVATION AUTHORITY | ONTARIO
BUCHOLZ MCEVOY ARCHITECTS + ZAS ARCHITECTS

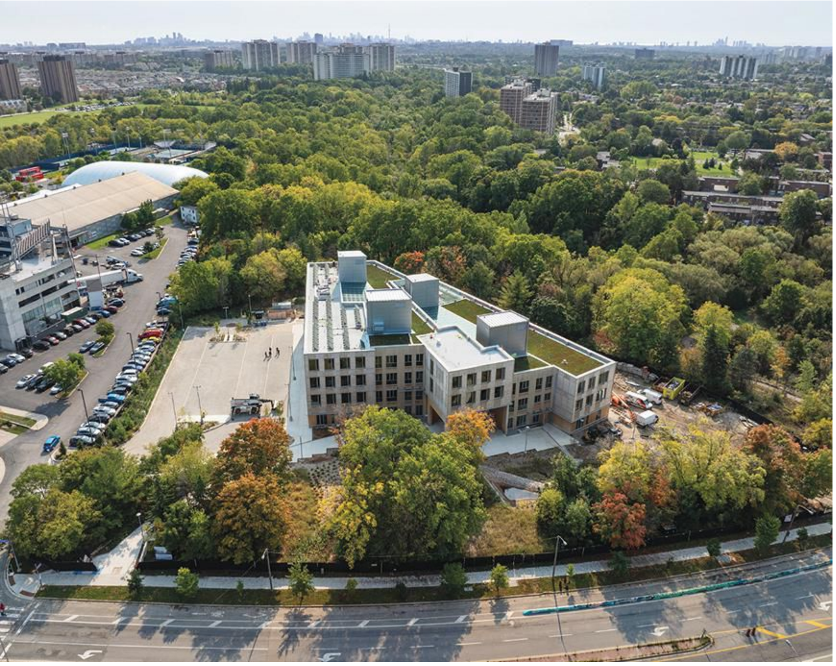
Watershed Moment

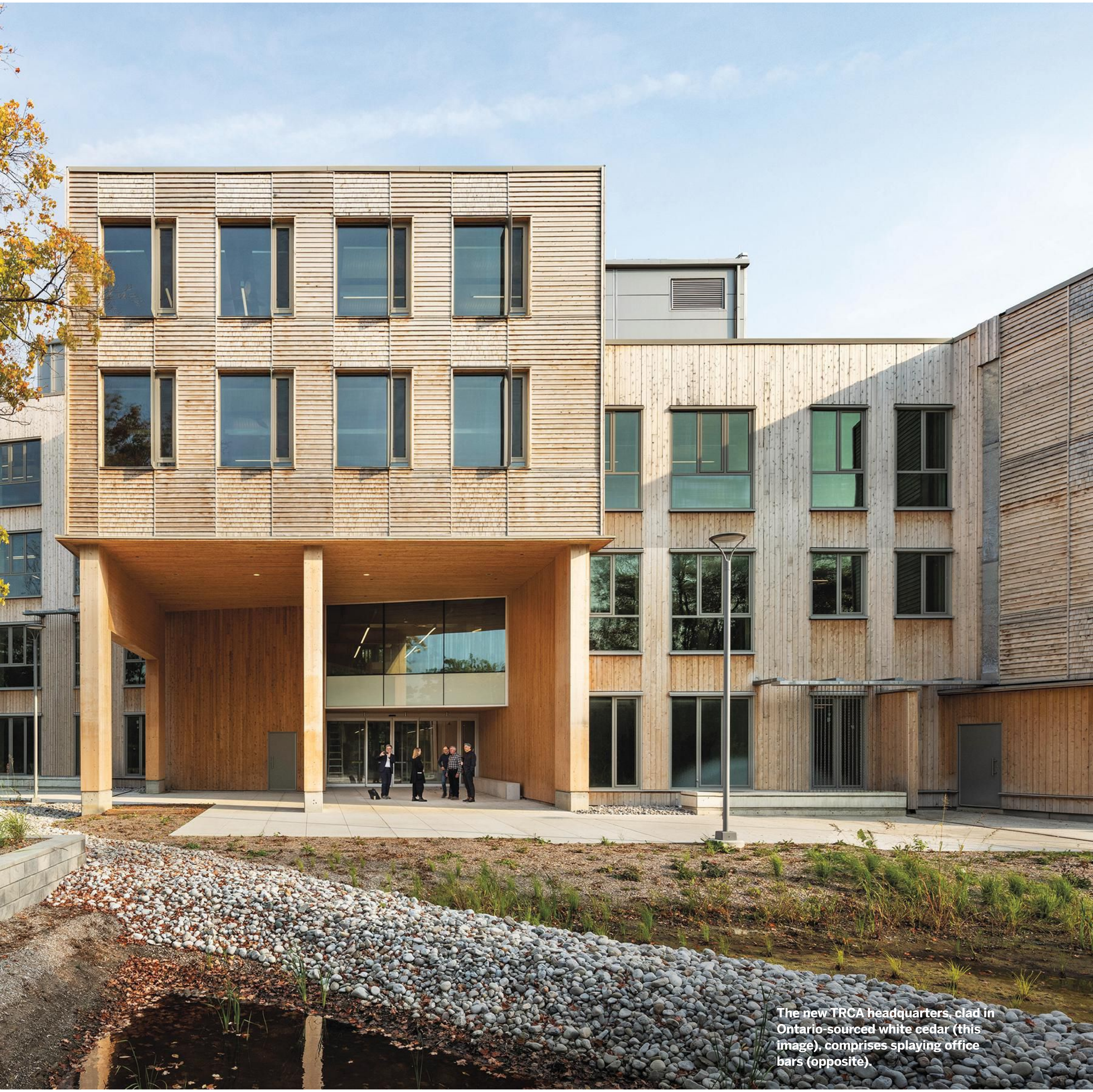
A regulatory agency focused on flood prevention gets an exemplary new headquarters.

BY JOANN GONCHAR, FAIA
PHOTOGRAPHY BY MICHAEL MORAN

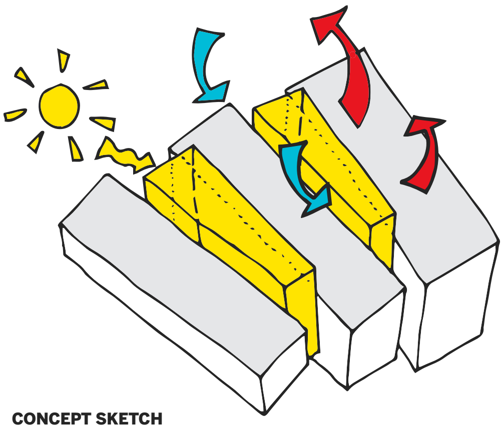
JUST OVER 70 years ago, in October 1954, Hurricane Hazel cut a path of destruction through the Caribbean, the eastern United States, and Canada. In Southern Ontario, the storm dumped 11 inches of rain on Toronto and nearby communities in 48 hours, killing 81 people, washing out bridges and roads, and displacing more than 1,800 families.

Out of the disaster was born the Toronto and Region Conservation Authority (TRCA). The organization's mission includes regulating development to ensure responsible management of water, land, and natural habitats, and protection from extreme weather events, especially flooding. Its jurisdiction encompasses nine watersheds and their Lake Ontario shorelines and spans multiple municipalities representing almost 5 million people. "It is what government would look like if it were defined by water," explains Steve Heuchert, a planner and



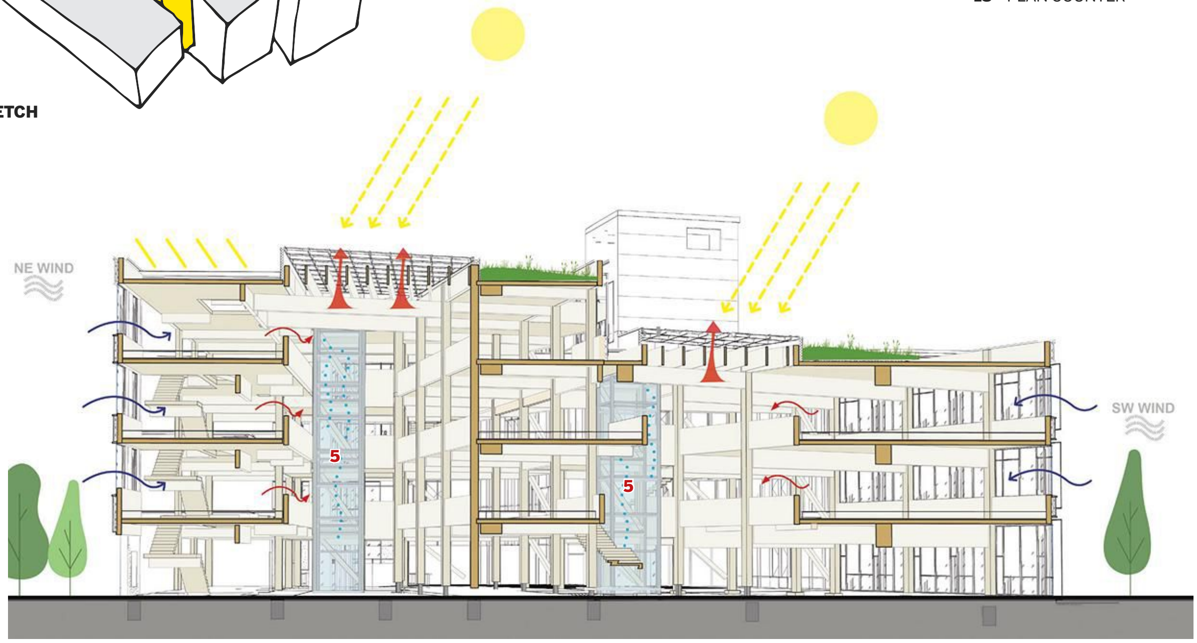


The new TRCA headquarters, clad in Ontario-sourced white cedar (this image), comprises splaying office bars (opposite).



CONCEPT SKETCH

1 ENTRY
2 RECEPTION
3 WAITING AREA
4 ATRIUM
5 WATERWALL
6 CAFETERIA
7 KITCHEN
8 MEETING ROOM
9 WORKSPACES
10 PRIVATE OFFICE
11 QUIET ROOM
12 STORAGE
13 PLAN COUNTER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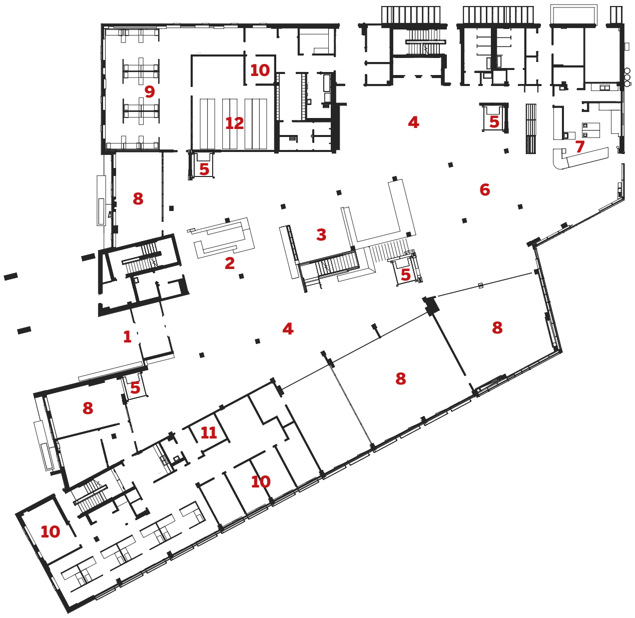
SW WIND

ENVIRONMENTAL SECTION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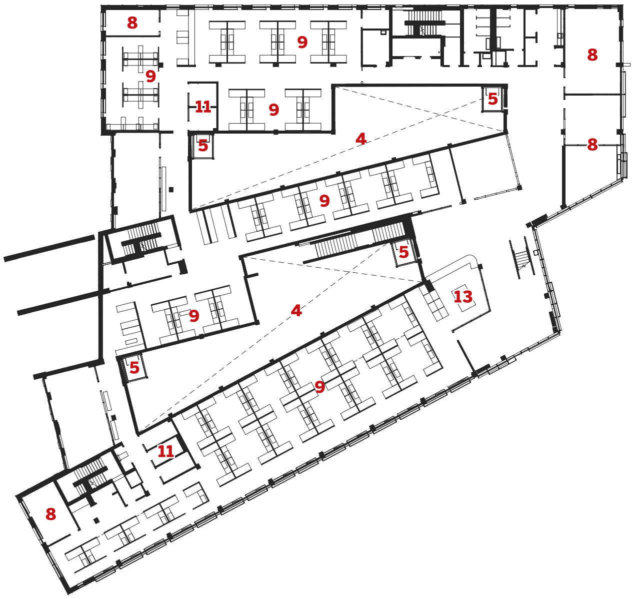
LEVEL-ONE PLAN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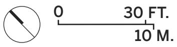
LEVEL-TWO PLAN



an associate director at TRCA.

Heuchert was a member of the committee that selected the team of Dublin-based Bucholz McEvoy Architects and local firm ZAS Architects to design a new TRCA headquarters in 2017. The authority, with a current staff of about 450, had long outgrown its one-story, timber-framed offices in North York, about 15 miles from downtown Toronto. In addition to needing more space and a building that would support its collaborative culture, the agency hoped for a headquarters that would be a "superstar environmentally, that would speak to what we wanted others to do," says Heuchert. "The TRCA desired," adds Marek Zawadzki, ZAS senior principal, "a project that would serve as a demonstration to developers."

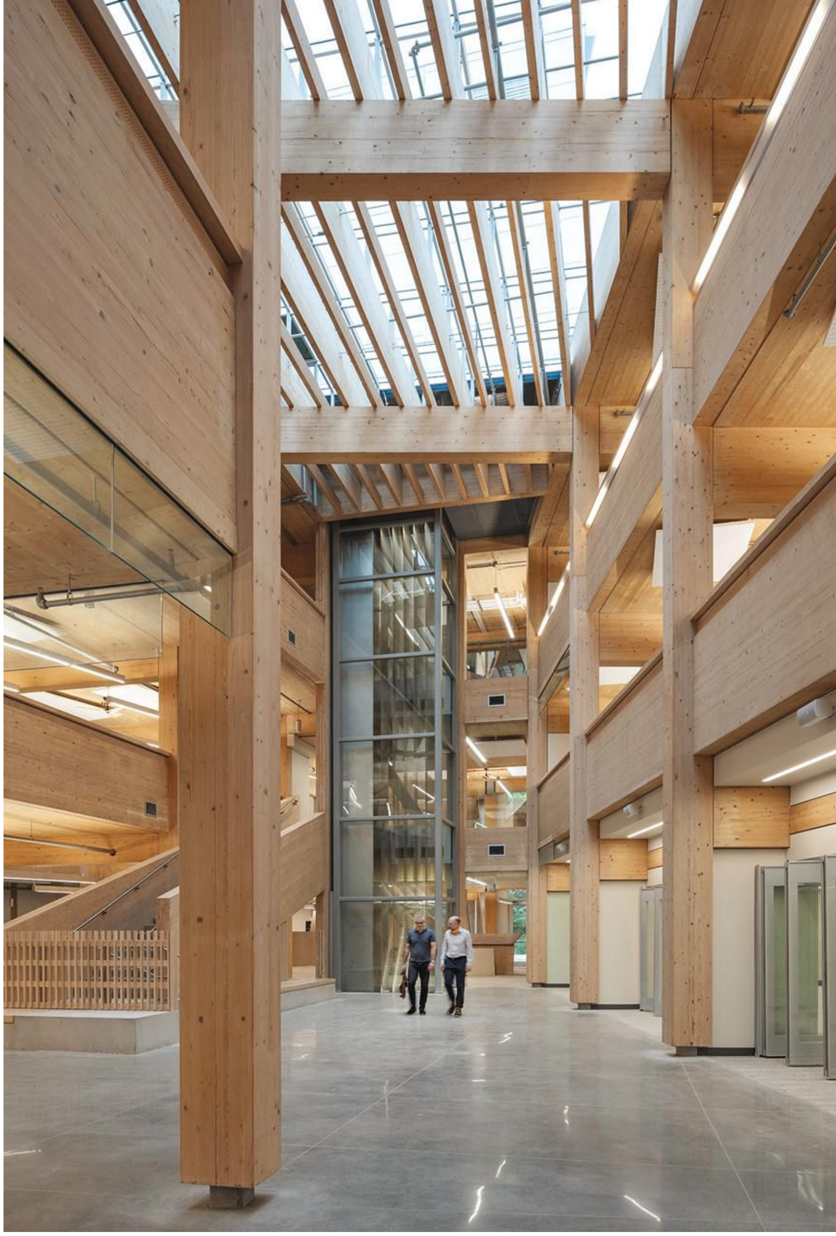
After several years' working out of rented offices, the staff is about to move into its new 80,000-square-foot headquarters, which sits on the same suburban site once occupied by the agency's former home, at the edge of Black Creek Ravine—the location a part of the network of streams, rivers, and winding wooded corridors that contribute to the watersheds the TRCA oversees. The $39.5 million building has already earned zero carbon certification from the Canada Green Building Council and is on track for LEED Platinum and WELL Silver status.

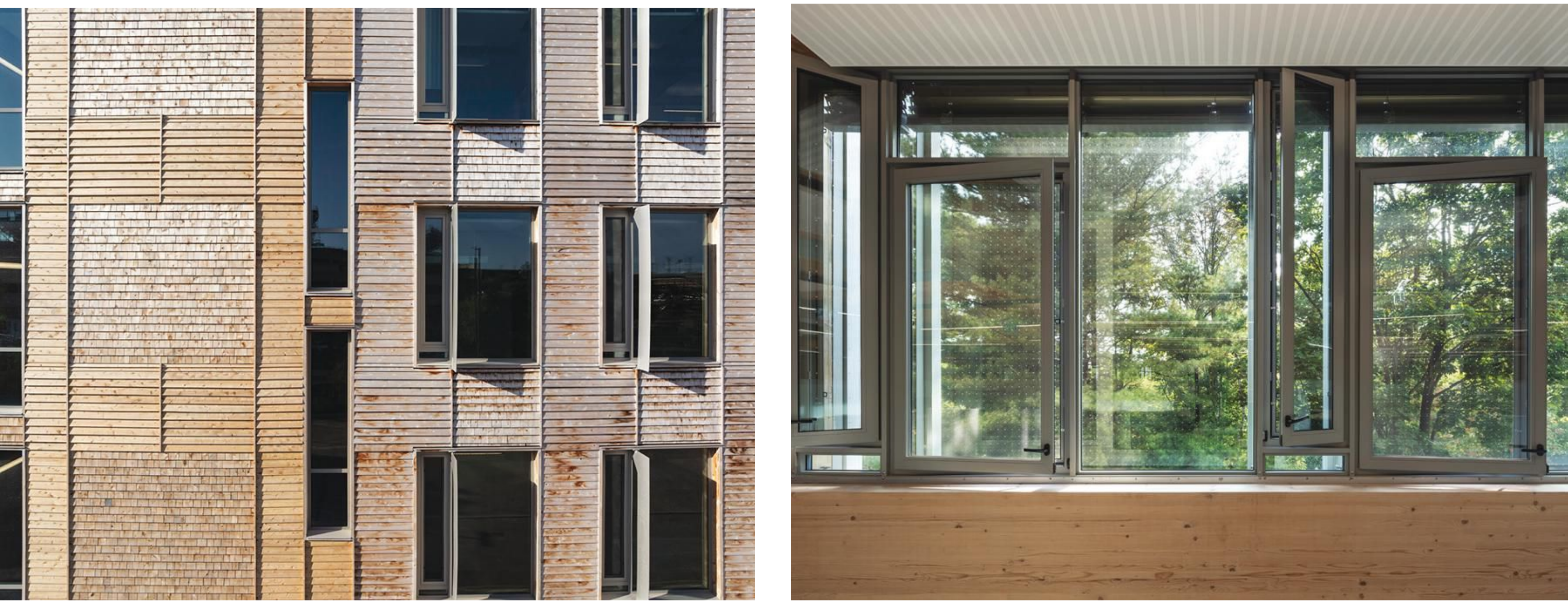
Despite the project's big green ambitions, the building doesn't shout. Instead, it has a quiet expression of stepping and subtly skewed volumes enclosed within a gridded shingled facade of Ontario-sourced white cedar. This geometry was largely determined by a client mandate to preserve the site's mature sugar maples, recognizing their importance to the ecological health of the nearby ravine. In early project meetings, "there was a lot of talk about urban woodlands, hydrology, and natural systems," says Karen McEvoy, founding director of Bucholz McEvoy with Merritt Bucholz. So, respecting the drip lines of the trees, the architects configured the mass-timber structure to create three office "fingers"—three and four stories tall—splaying them in a fan-like fashion so that atria could be inserted in between. The multistory skylit voids allow visual connections between the office areas, and they "crack the building open," explains Bucholz, allowing fresh air and daylight to penetrate deep into the interior.

Arguably, the building's most unusual feature is its set of four glass-enclosed towers, each about 6 by 7 feet in plan and extending through the roof. Once fully operational, water will run down sheets of metal mesh suspended within. These "waterwalls," which punctuate opposing ends of each atrium, resonate with the agency's mission, McEvoy points out. But they are more than merely symbolic. With integrated solar chimneys, they are part of a highly optimized environmental-control system, explains Erik Olsen, managing partner with Transsolar, the project's climate-engineering consultant.

The waterwalls are coupled with geothermal wells. Taking advantage of the relatively stable temperature of groundwater, they first precondition outdoor air that is brought through the top of each glazed shaft. From there, ventilation units pull off the fresh air at each level, delivering it to the office areas at low velocities through an underfloor plenum, with integrated radiant panels providing additional heating or cooling as needed. Return air is also channeled through the ventilation units, which are equipped with energy-recovery technology, before being

The architects have inserted multistory atria (right and below, right) between the office areas and punctuated the ends of these skylit voids with glass-enclosed "waterwall" towers (right).





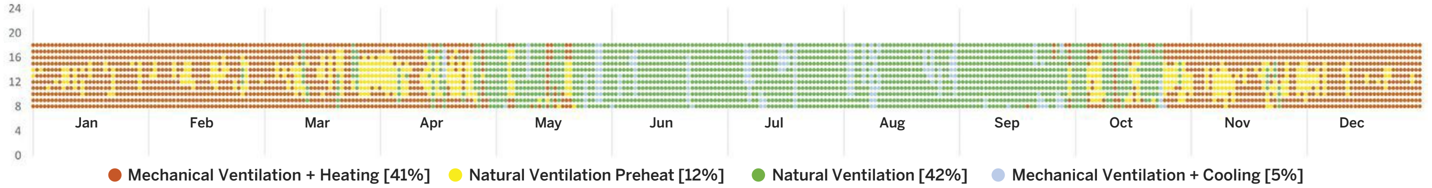
Windows include operable lites (above). An additional layer of glass, outboard of the south-facing windows (above, right) makes natural ventilation viable for much of the year (below).

expelled through vents located above each tower.

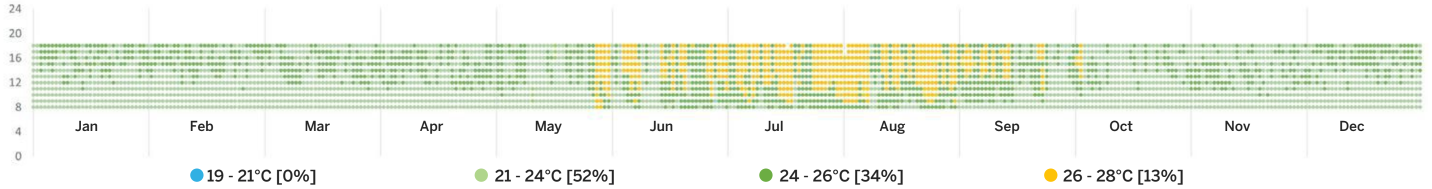
The project team expects the use of operable windows to be a viable comfort strategy much of the year, even beyond the shoulder seasons of spring and fall. One feature that will help extend the use of natural ventilation into the colder months is an additional layer of glazing mounted a few inches outboard of the south-facing windows. When conditions are right, the sun will preheat air trapped within the resulting cavity, allowing occupants to comfortably open the windows. The extra glazing also protects external blinds, which will automatically lower to prevent summertime heat gain. Along with features like a highly insulated and airtight envelope and triple glazing, the designers calculate that the building's climate-control systems and comfort strategies will produce an energy-use

Operating Modes and Temperatures for Typical Office Space

Ventilation Mode



Operative Temperature

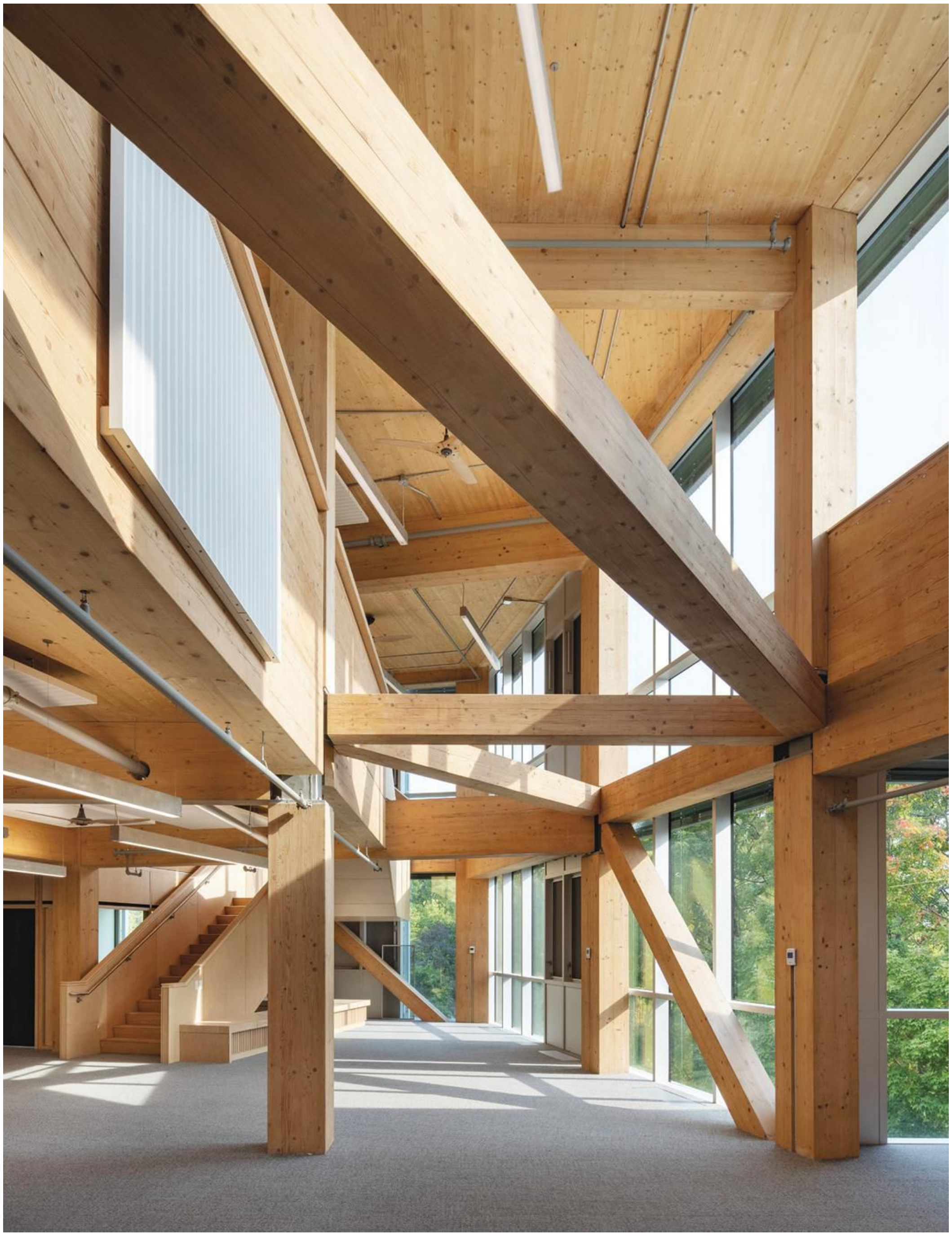


The building's generously glazed southeastern corner affords views of Black Creek Ravine, which winds past the site (right).

intensity of 25 kBTUs per square foot, or 50 percent below baseline.

Its embodied-carbon footprint is also impressive, with a 75 percent reduction compared to an average Toronto building. In no small part, the savings are due to the building's structure, with nearly all its elements above the ground slab derived "from plants," says Bucholz. Of course, he is referring specifically to trees. Except for the connections, which are concealed, the building frame is almost exclusively mass timber, with glue-laminated columns and beams from Austria and cross-laminated-timber floor slabs from Scandinavia. Even the lateral bracing and the building's cores, as well as the egress stairs they enclose, are mass timber.

As the TRCA moves into its new home, staff will find reminders everywhere around them—from its exposed timber frame to elements like waterwalls—of the broader environment and their stewardship mission. But even before employees settle in, the new building has begun to function as anticipated, with local universities setting up research studies to monitor aspects like changes in the moisture content of the wood and the indoor air quality. "The building is meant to be a living lab," says Bucholz. Let the experiment begin. ■



Credits

ARCHITECTS: Bucholz McEvoy Architects — Karen McEvoy, Merritt Bucholz, design leads; Diane Harrington, project architect
ZAS Architects — Marek Zawadzki, principal; Andrzej Gortat, project architect; Carmine Canonaco, technical lead

CONSULTANTS: RJC (structure); Transsolar (climate); Introba (mechanical); MBii (electrical); TYLin (civil); Schollen & Company (landscape)

CONSTRUCTION MANAGER: Eastern Construction

CLIENT: Toronto and Region Conservation Authority

SIZE: 80,000 square feet

COST: $39.5 million

COMPLETION DATE: January 2025

Sources

MASS-TIMBER STRUCTURE: Element 5, Sora Enso, Hasslacher

ONTARIO WHITE CEDAR CLADDING: Taylor Sawmill

CURTAIN WALL, SKYLIGHTS: Stouffville Glass

ROOFING: Bothwell Accurate

WINDOWS: Inline Fiberglass

EXTERIOR BLINDS: Hella Blinds

RADIANT PANELS: Messana

CEILING FANS: Big Ass Fans

WATERWALL: Acapulco Pools, GKD Metal Fabric

ELEVATORS: Schindler

LIGHTING: Acuity Brands

PIRAEUS TOWER RECLAD | GREECE | PILA STUDIO

A Tall Order

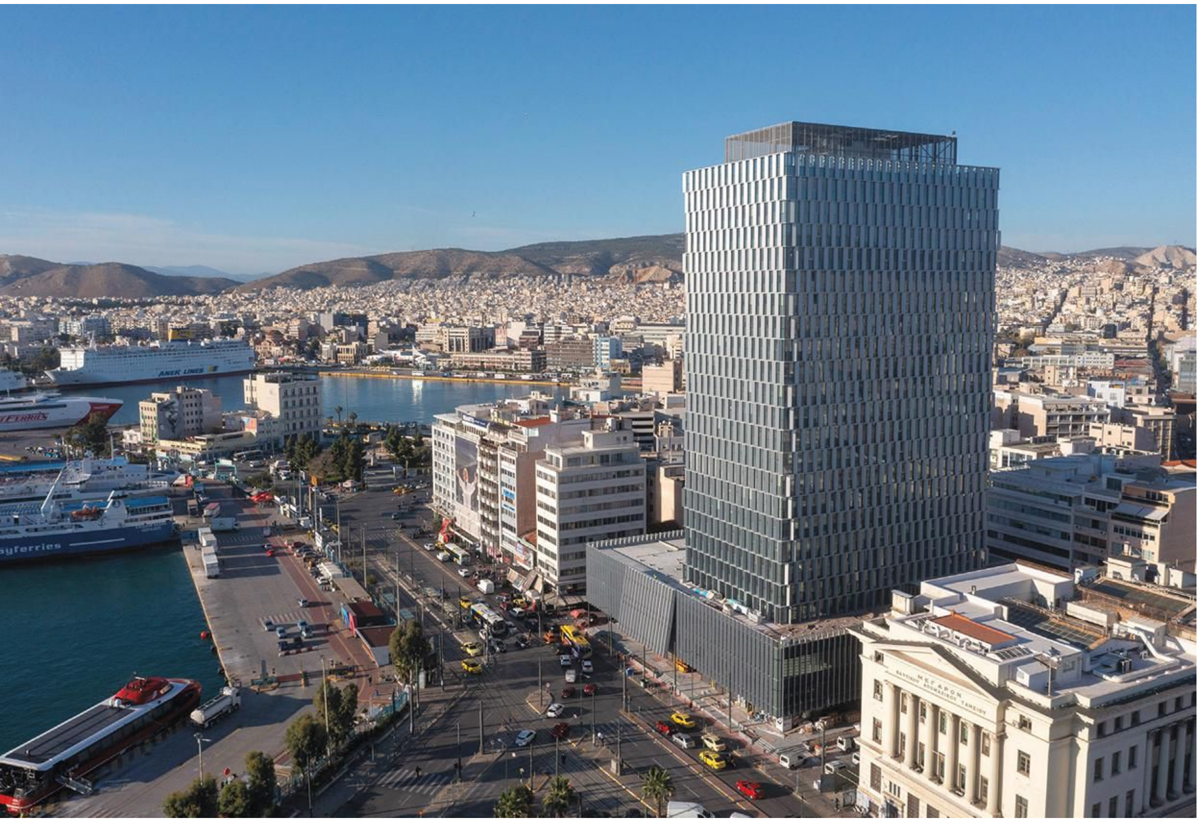
After decades of disregard, a high-rise in skyscraper-averse Greece undergoes a refresh.

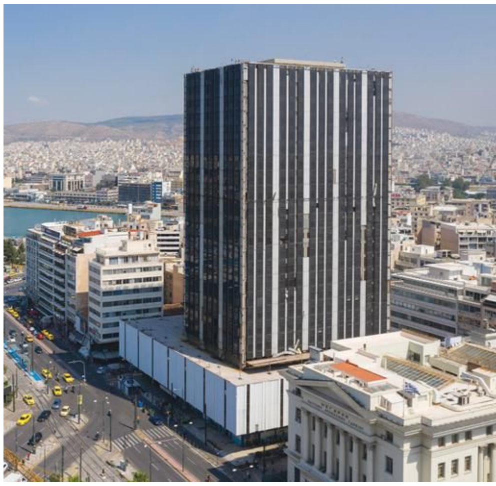
BY PHOEBUS PANIGYRAKIS

IT'S NOT EASY to be an optimist, especially as an architect. You have to gloss over hardships, play the cards you are dealt, and deliver a message of lightheartedness to a frequently emotional audience, often while standing on the fragile stage of politics. These cases all apply to Piraeus Tower, in the port city neighboring Athens for which the high-rise is named. The building nevertheless reinvigorates the prospects for skyscrapers in Greece, a country that has been largely unfamiliar with, and borderline hostile to, this building type for more than five decades.

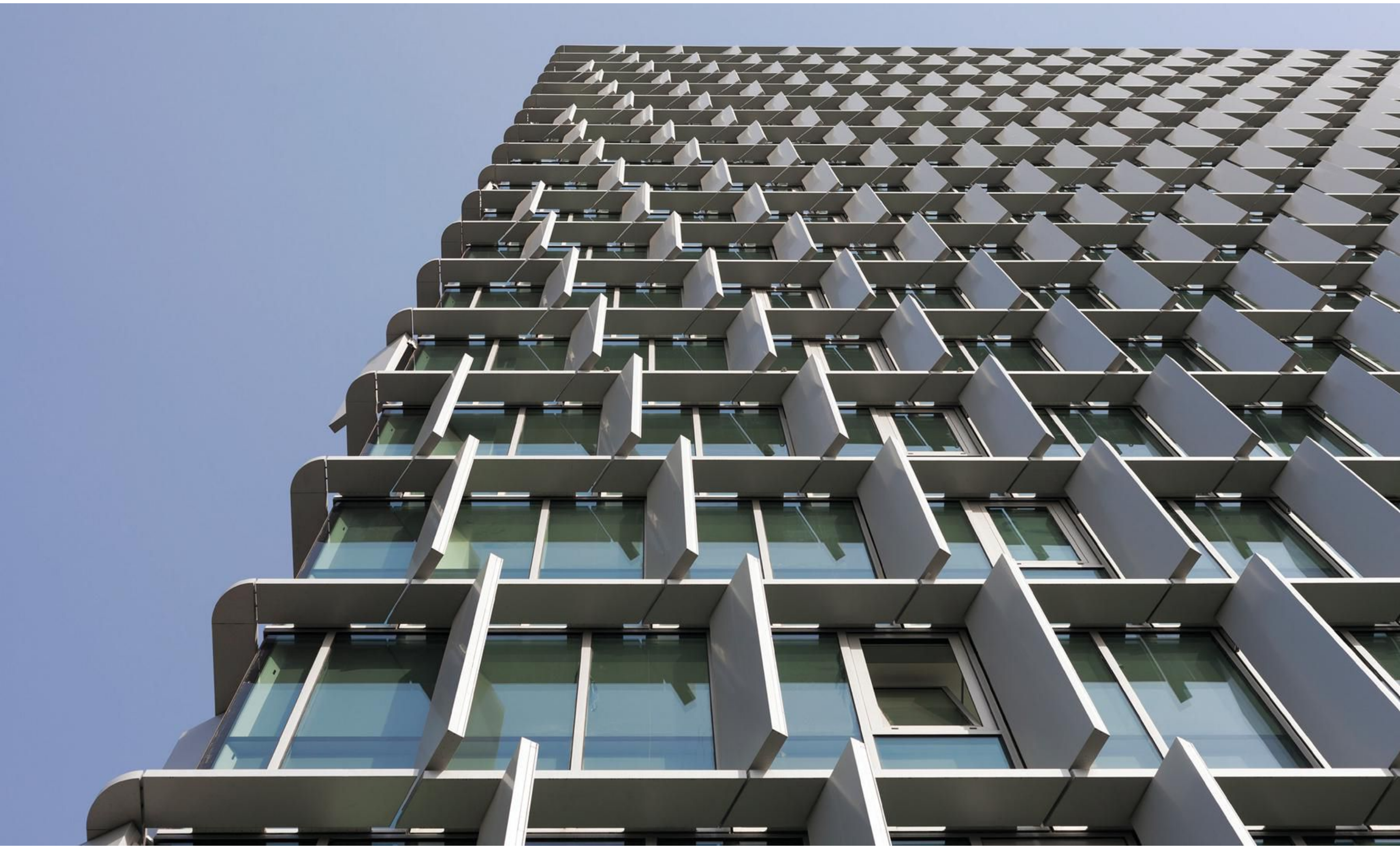
The design of the 24-story tower, promoted as the first "green and digital" high-rise in a country of almost exclusively low-rise structures, is now characterized by its neutral yet playful facade. Owing to the brise-soleil elements of its curtain wall, which continuously shift in elevation and rotate in plan, the tower's verticality is visually broken into a sort of spiral. With its privileged position on the port's waterfront, the tower might appear from afar as a maritime flag, waving against the wind. Up close, the building offers shade to passersby via a recessed gallery that surrounds its plinth, whose three floors accommodate retail, contrasting with the office spaces of the upper floors. A slanted cantilever, seemingly opening like a hanger door, announces the main entrance while also suggesting movement, mirroring the louvers above. But the tower's design is hardly the main story.

The building's recent completion brought closure and relief to a long-standing stalemate to refurbish the pre-existing but derelict tower that had been looming large as a "dormant giant" since 1972. This feat was managed by a long list of stakeholders, including three architecture practices: Pila Studio, led by Ilias Papageorgiou and Christina Papalexandri, focused on the facade and common areas; Betaplan served as lead architect; and ASPA oversaw the retail component. The municipality of Piraeus, as part of economic reforms that allowed for the transfer of public property to private developers for a period of 99 years, relinquished the tower to the developer Dimand to spearhead the effort. Additional funding was provided by Prodea Investments and the European Bank for Reconstruction and Development. Being one of the first projects using this procedure—and, due to its expenses and prestige—it was inaugurated with great fanfare. It was also closely watched by the Greek political elite, which has been eager to have any success stories after 15 years of austerity under





PHOTOGRAPHY: © NIKOS DANIILIDIS (EXCEPT AS NOTED); YIANNIS HADJIASLANIS (OPPOSITE)



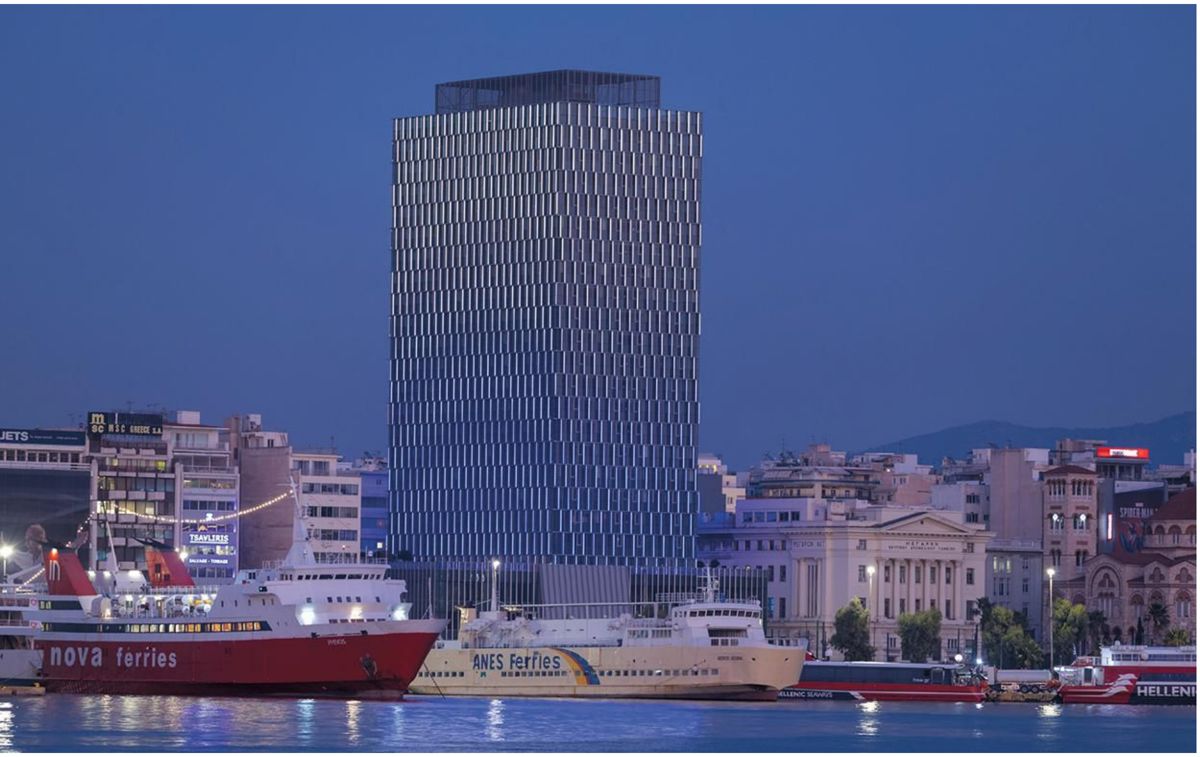
Architects transformed a disused high-rise (opposite, right) into Piraeus Tower (opposite, left). Fins minimize solar heat gain (above).

the liberal-economics policies imposed by the European Union and the International Monetary Fund. Piraeus acts as the start of the "Athenian Riviera"; the tower, the second-tallest in Greece, offers a prototype for attracting international capital investment. If successful, it can establish a valuable precedent, especially considering the much larger developments under way nearby, including Ellinikon, the transformation of the former airport, master-planned by the studio of Foster + Partners (RECORD, January 2024). In this particular case, the skyscraper typology (the lifestyle it represents, and the design expertise and culture associated with it) raises the stakes even higher.

Where the high-rise now soars, the quaint town hall of the municipality of Piraeus once stood, a 19th-century Neoclassical building topped by a clock tower that marked the busy waterfront. The destruction of the old building, and the construction of a skyscraper in its place, happened under the military dictatorship that governed Greece between 1967 and 1974 and whose leadership, backed by the U.S., looked optimistically to Western standards of modernization. Although the tower was intended to supplant the Neoclassical face of the city, the designs from the 1970s did echo a somewhat classical approach, one that emphasized verticality, rigidity, and rhythm, and a strict black-and-white color scheme. The project was brought to a halt after the installation of exterior cladding in the mid-1980s, with the main shaft of the tower missing mechanical systems, so only the first three floors were ever used in the course of the following decades.

Instead of trying to balance classicism and modernism, the renovated Piraeus Tower bridges the gap between an attempt at modernism and budget-friendly verve to create an easily replicable formula. Modernization, which used to be a state project, is now a commercial one. Traces of Greek architecture or symbolism are avoided, resulting in an aptly corporate aesthetic. The tower is more appropriately characterized by what it conceals, as well as its lighting and sustainable-design features, than what it outwardly expresses. For example, a detail of the facade, difficult to see but significant, is an element, like a shadow box, incorporated behind the glass panes, hiding the stocky edge beams of the existing structure.

The tower is also dressed in a versatile LED system, designed and curated by Thanos Danilof, which transforms it into a 3D billboard during celebratory and promotional events, often complemented by fireworks (such as when the Piraeus soccer team

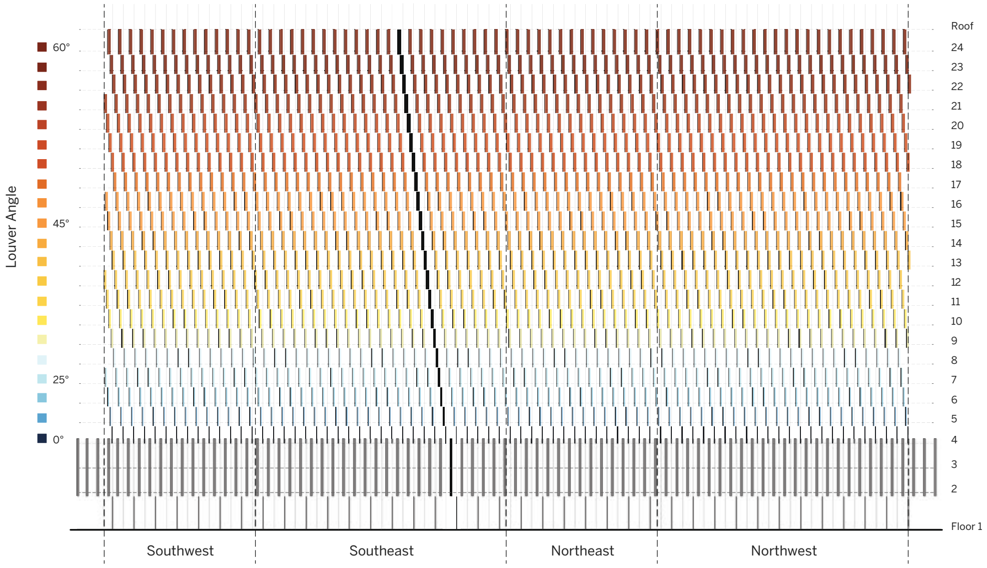


Programmable LEDs embedded into the skyscraper's facade accommodate light shows and other spectacles.

wins a big game). Second to that, the development has been commended for its environmental approach as the first high-rise in Greece to achieve LEED Platinum certification, and for opting to retrofit an existing structure, reusing its embodied carbon instead of demolishing and building. As Papageorgiou explains, one important aspect was the optimization of shade through the precise angle of each of the facade's louvers, minimizing solar heat gain, while another was the innovative handling of the old facade, with about 126 tons of glazing removed and recycled in Romania. Lastly, the tower benefits from a newly opened adjacent subway station, which reduces the need for parking and ensures easy access to the tower's common spaces, such as the planted roof of its plinth, now shaded partly by photovoltaic panels.

In the end, and 50 years in the making, the optimistic dream of having a skyscraper in Piraeus is now a reality and a "symbol of confidence," as Greece's prime minister recently called it. Pila Studio's involvement is especially relevant here, as the New York– and Athens-based firm seems to bridge the design and business cultures of both the U.S. and Greece. While the return on investment of an endeavor kick-started by the municipality has yet to be determined, the tower serves as a point of discussion among Greek architects regarding the role that skyscrapers might come to play in the country. And, despite the fact that skin and bones may complete a project, the typology still faces many hurdles in Greece before cementing its position as a viable and accepted solution. ■

Phoebus Panigyrakis is an architect and historian based in Athens.



FACADE DIAGRAM

Credits

ARCHITECTS: Pila Studio (facade and common areas); Betaplan (lead architect); ASPA (retail)

ENGINEERS: Eckersley O'Callaghan (facade); Denco (structural); Insta (m/e/p)

CONSULTANTS: Diman (project management); Danilof (lighting); Agropolis (landscape); DCarbon (LEED); AI digits (BIM); Technology & Acoustics (acoustics); AKSM (survey); EXiNOS (refurbishment); B & T Pyrgiotis (fire)

CLIENT: Piraeus Tower SA

SIZE: 368,125 square feet

COST: withheld

COMPLETION DATE: December 2023

Sources

CURTAIN WALL: Etalbond (fins)

WINDOWS: ETEM (tower); ALUMIL (podium)

GLAZING: Saint-Gobain

John Ochsendorf and Guy Nordenson discuss building renewal and material reuse.

John Ochsendorf (pictured) is a professor at the Massachusetts Institute of Technology (MIT) and a speaker at RECORD*'s Sustainability in Practice event at the school this month. His research focuses on the mechanics and behavior of historical structures. He is the recent recipient, along with Juliana Berglund-Brown, of an approximately $1 million, three-year grant from the Environmental Protection Agency to measure and mitigate carbon emissions in construction. The grant will fund research to advance understanding of structural steel products at the end of a building's life and assess the impacts of reusing steel in new buildings. Here he talks with fellow structural engineer Guy Nordenson.*

PHOTOGRAPHY: © HOLCIM FOUNDATION (TOP); GUY NORDENSON (BOTTOM)

Nordenson: I want to get your reaction about the recent restoration of Notre Dame. From these older structures and their alteration, we can discuss the impact of material choices and decisions to demolish or reuse.
Ochsendorf: I personally am very happy with the decision to restore, not only in-kind with materials but also in technique. Many of the timbers were hewn by hand, so that you can see the axe marks, and it was an opportunity to nourish those crafts, to make sure we still know how to shape oak timbers. I do think that people who visit expect to see something that represents authenticity. If you were to repair that roof in steel or carbon fiber or some other material today, we could have built it faster and cheaper, and the photos for most of the tourists would have looked the same. You could have put slate on the outside. But does it matter that those are oak-timber frames built in a traditional way from locally harvested oak trees? I think the answer is yes. Ultimately, any structure represents our values and it's a cultural act, and rebuilding it in stone and wood using traditional techniques showed that we still have an ability to do hard things. I think there's something quite poetic about the act of rebuilding it by traditional means.

The UNESCO World Heritage Site of the Horyu-ji temple in Japan houses the world's oldest surviving wooden structures.

Something we've been discussing together for a while are two Japanese structures: the Ise Shrine, which is rebuilt every two decades, and the Horyu-ji Buddhist temple, that is patched and repaired and includes some hinoki wood that has been there for over 1,000 years. Can you reflect on that as an example or a lesson for us in the context of sustainability and material use?
Both of those examples hold really deep meaning for me. The renewal of Ise roughly every 20 years for more than 1,000 years really captures the imagination, because it says immediately that buildings are impermanent and we must plan that. If it were left alone for 100 or 200 years, it would probably be okay. But by ritualizing its renewal every 20 years, you say this is impermanent and we're going to address that. Acknowledging directly and then completely renewing Ise is very similar to me to the Inca grass bridge that I've been studying for about 30 years. That's the oldest bridge in the Americas. Most people haven't heard of it. It's been there for probably 700 years, and it's renewed every year from locally available grass. I think we have a lot to learn from it, because the reality is, most of our buildings today are being torn down before the end of their life. We thought the Kingdome in Seattle was an anomaly, but, in fact, American stadiums, as a recent MIT thesis has shown, are torn down, on average, about every 30 years. These stadiums are not at the end of their life. We're landfilling pretty good material, or we melt a steel beam down and make a new steel beam and say, "Look how green this is." But the lessons from traditional architecture, from these two Japanese examples, are that materials have much more value than that. This question of complete replacement versus maintenance or repair also gets at deep values. We all know we do not maintain our infrastructure or our buildings well enough, and we can see examples of that all around us. Questions about the lifetime of

any structure are absolutely critical, and more often than not we don't acknowledge them. It's something that's missing in our education right now, of both engineers and architects. We don't acknowledge time scales of buildings in a way that we should.

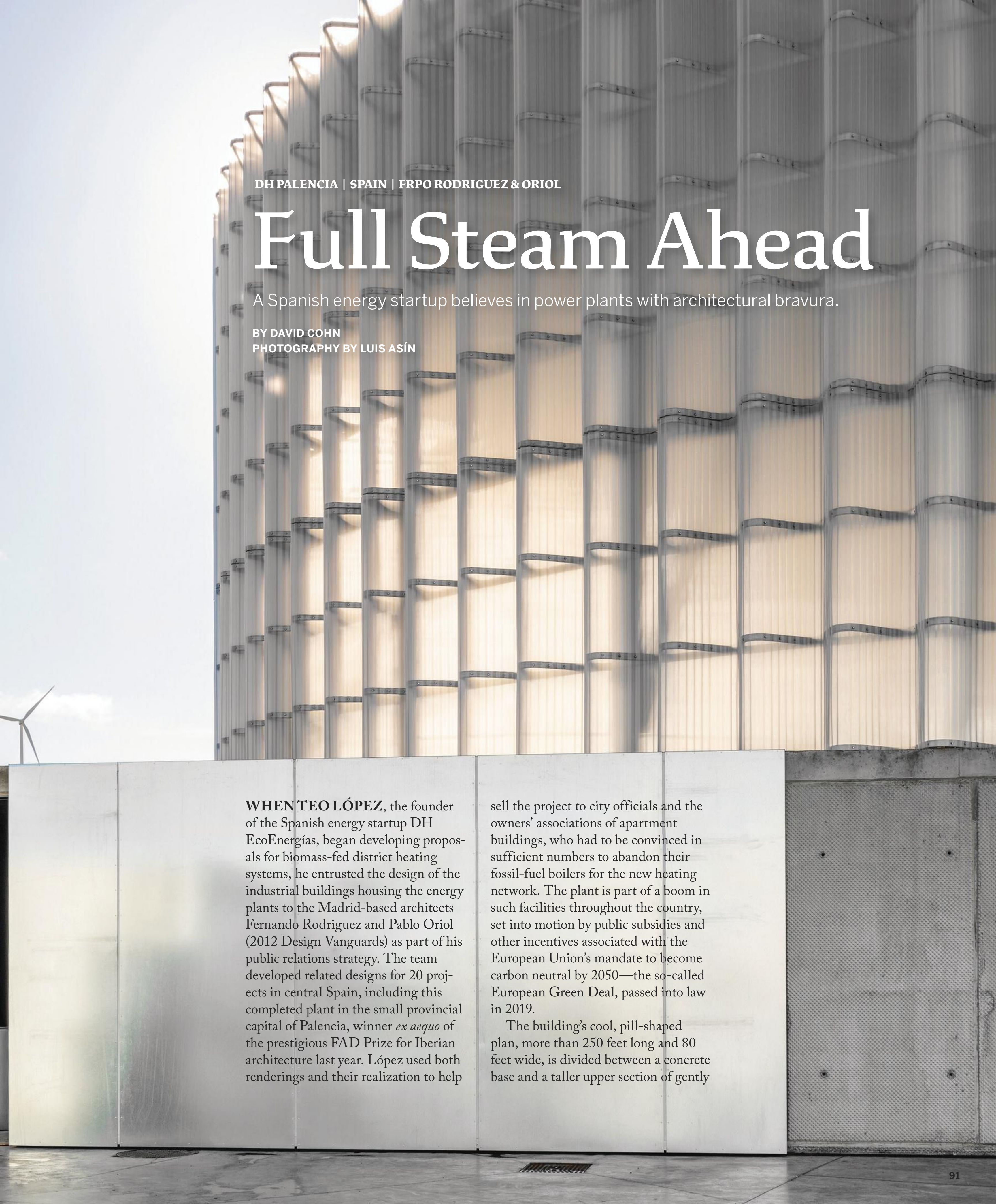
I recently participated in a book commemorating the 60th anniversary of New York's landmarks law (page 47). It was interesting to think about the building techniques that were prevalent in the early days of high-rise construction. The tile arches and, of course, your specialty, the Guastavino vaults. There's a history of invention, of craftsmanship, that we treasure while we restore. How do we think about that in the context of reducing carbon emissions, embodied carbon, and so on?
In many ways, the building codes have codified the proper ways of building, the two true ways of building. And by that I mean steel or concrete. We have highly detailed building codes that are not too dissimilar from where they were 100 years ago, but now they're really enshrined as the only true ways to build, that we can certify, and that we can defend in a courtroom if lawyers are involved. Did you follow the code or not? The astonishing thing about this is that we effectively threw away 5,000 years of human development around the culture of building. I could give you many examples, of which a Guastavino-tile staircase is but one. There are earthen walls that are stories high all over the world that have been maintained for centuries. You have farmhouses in France that are 700 years old. You have tall buildings in Yemen made of earthen construction that is local, that requires a certain amount of maintenance and renewal. For me, it really is about our progress ideology: Are we at the pinnacle of all time and is there a one true way to build, or are there methods of building that may be seen as anachronistic today but have great value and great lessons for us in terms of local material, labor implications, craft implications, and maintenance? Faster, cheaper building—as industrialized as possible, with materials from wherever you can get them—comes with dramatic carbon implications that deserve to be questioned.

The 52-story Union Carbide Building, designed by SOM, was completed in 1960 and demolished in 2021.

PHOTOGRAPHY: © ARCHIVE PHOTOS/GETTY IMAGES (TOP)

I'm thinking about the Union Carbide building that was recently replaced here in New York for a new tower. Some of the claims that are made for new buildings—that they provide natural ventilation or energy savings—aren't always realized. But there isn't a great deal of research that I'm aware of, about whether these claims are actually sustained in practice.
I think of every new building as a research project, as an experiment that was done. The Union Carbide example is one that is really motivating a lot of our students right now, because so many of the steel sections that went into that building could be reused in new structures and could be mined as a resource by the architectural and engineering communities. But, because of the great inertia of the systems, of the demolition contractors' taking it down and then selling it pennies on the ton for scrap, we need a more radical intervention to say this material has value, let's mine it and use it and give it as feedstock for something else. We're just going to take 300 of those beams that came down and store them and then renew them with a bit of labor. I think we're at a fascinating time for the built environment, because the issues have never been more critical. And I find our educational systems to be woefully ill-equipped for what we face in the decades ahead. We really have a postwar, new-build approach. Most of the education focuses on new buildings. In the case of structural engineers, a graduating structural engineer in the U.S. has never encountered a brick arch or a timber covered bridge and doesn't have any real ability to prove that those work, or even just the cultural sensitivity that they may have value. We have historic systems being torn down. It's on us as educators. I'm very frustrated with what we—including me—are teaching.

Your point about reusing steel sections from a building that has been taken apart—that ought to be part of the code. There should be some regulation, just as there's regulation for new buildings, of what to do with the remains of a deconstructed one.
In terms of circularity, we're at a very exciting moment where more and more designers can now specify reused or upcycled materials. We just got a grant to help develop reused steel and are working with American Institute of Steel Construction (AISC) to create code guidelines, so that if you wanted to reuse a piece of steel from an older building, a steel section, you would be able to do it inside a framework. We need more radical actions to find better ways to operate our buildings. The students inspire me because they are often ahead of us, and circularity is central to a lot of student research and designs right now in schools of architecture. For me, what it comes down to right now is that our profession of structural engineering is in real need of embracing more design and more history, more culture, more values, so that we can continue to bring unexpected solutions to projects. That's the challenge that we face in the coming decades: how do we help our field continue to bring new ideas to the table and not to be frozen, with a single set of solutions? The beauty of steel and concrete is that you can do essentially anything. By being in a dialogue with the past, whether it's an Incan bridge or a Japanese temple, it says there are different ways of achieving longevity in structures. If you go to the Oyster Bar that's supporting the main concourse of Grand Central Terminal in New York, those are doubly curved thin shells that are unreinforced; they're about 4 inches thick; they carry millions of travelers every day. The building code today says you cannot do that. So my fascination with historical methods of construction and structure is from pure intellectual interest. It's not out of nostalgia. There are fascinating ways to build that we are not teaching and the building code is not embracing, and the coming decades are going to require us to question that. ■



DH PALENCIA | SPAIN | FRPO RODRIGUEZ & ORIOL

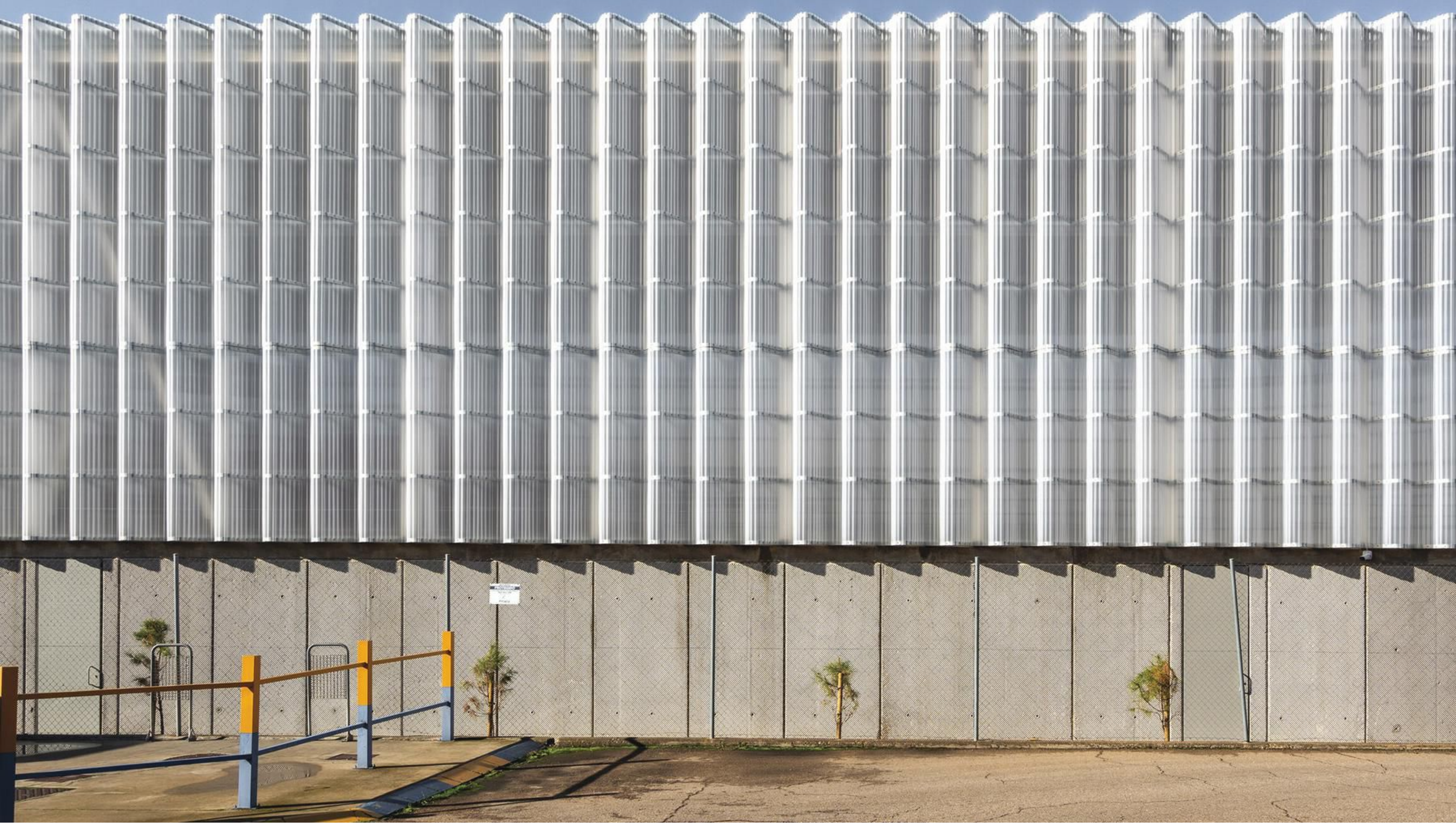
Full Steam Ahead

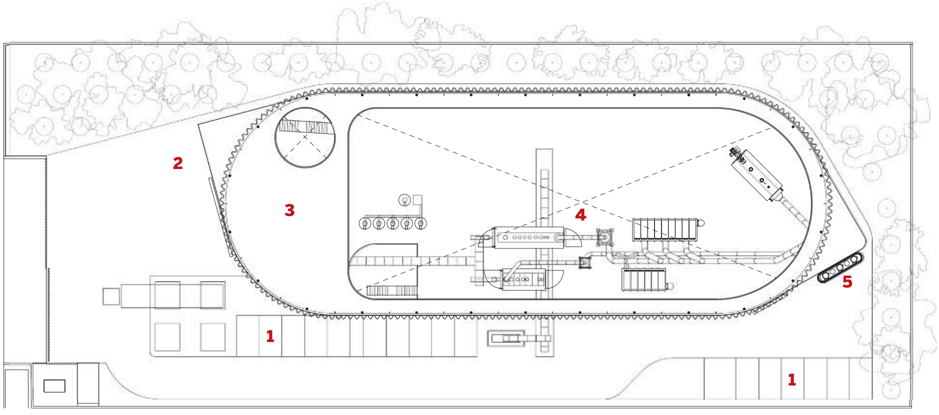
A Spanish energy startup believes in power plants with architectural bravura.

BY DAVID COHN
PHOTOGRAPHY BY LUIS ASÍN

WHEN TEO LÓPEZ, the founder of the Spanish energy startup DH EcoEnergías, began developing proposals for biomass-fed district heating systems, he entrusted the design of the industrial buildings housing the energy plants to the Madrid-based architects Fernando Rodriguez and Pablo Oriol (2012 Design Vanguards) as part of his public relations strategy. The team developed related designs for 20 projects in central Spain, including this completed plant in the small provincial capital of Palencia, winner *ex aequo* of the prestigious FAD Prize for Iberian architecture last year. López used both renderings and their realization to help sell the project to city officials and the owners' associations of apartment buildings, who had to be convinced in sufficient numbers to abandon their fossil-fuel boilers for the new heating network. The plant is part of a boom in such facilities throughout the country, set into motion by public subsidies and other incentives associated with the European Union's mandate to become carbon neutral by 2050—the so-called European Green Deal, passed into law in 2019.

The building's cool, pill-shaped plan, more than 250 feet long and 80 feet wide, is divided between a concrete base and a taller upper section of gently





SECOND-FLOOR PLAN

undulating translucent polycarbonate sheeting, which allows silhouetted views of the bright red furnaces inside and their accompanying pipes and machinery, as well as bathing the interior with a soft luminosity. The concrete base supports a cantilevered walkway around the space, provided for the organized visits of schoolchildren and other groups. In addition to creating a positive image for the enterprise, the design thus had a pedagogical function, explains Rodriguez. “It had to be transparent,” the architects decided, “and emanate a certain modernity—the idea of a coming future.”

Sited on industrially zoned land chosen for its visibility and proximity to customers, the heating plant powers an 8-mile network of insulated and pressurized hot-water piping—both supply and return—that the company has laid under city streets. The network can provide central heating and sanitary hot water to 6,400 apartment units (about 20 percent of the city’s housing stock) and 40 additional

public and private buildings. The system benefits from the compact urban fabric of Spanish cities, where large apartment buildings are the norm.

The plant's three biomass boilers have a current total capacity of 12 thermal megawatts (MWt), but there is space for an additional unit (demountable sections of the roof permit such upgrades). A backup gas boiler producing 6 MWt provides supplemental power during maintenance, emergencies, and peaks in demand. Other equipment includes feeders that transport the biomass fuel of wood chips from underground silos to boilers, pumps and controls for maintaining network water pressure, and automated compressed-air systems for cleaning boilers and removing the particle dust gathered by exhaust filters. A translucent chimney at one end of the building emits exhaust comprising chiefly water vapor, with carbon dioxide and other gases (though nitrogen oxide emissions are trapped by the boilers, according to DH EcoEnergías).

In buildings receiving service, substations transmit heat by thermal interchange to existing hot-water-circulation systems. Users are billed only for the energy consumed, like other utilities. Savings on heating bills can be as much as 25 percent, the company says, due to the relatively low and stable prices of locally produced wood chips compared to the volatility of the fossil-fuel market, as well as to efficiencies of scale and in the use of advanced technologies.

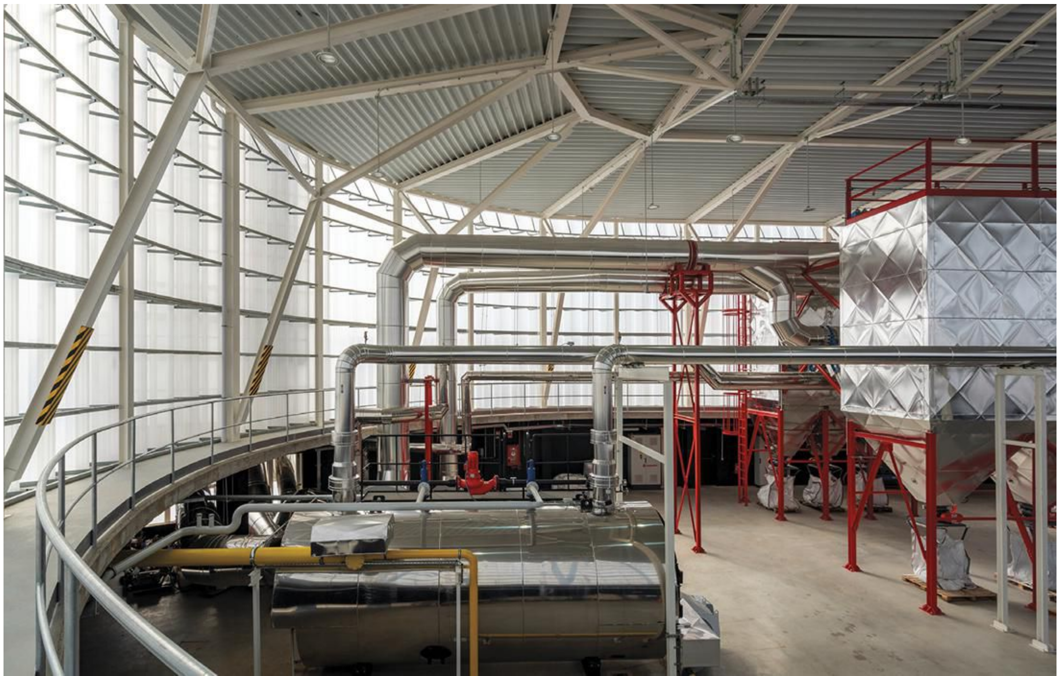
The key figures for the district heating plant, and the reason it has received grants from various government agencies, are its savings in fossil fuel consumption and CO_2 emissions. DH EcoEnergías calculates that the plant, when running at full capacity, cuts emissions by 95.5 percent, with a reduction of 25,468 tons of non-neutral carbon dioxide equivalent (CO_2e) per 115.9 gigawatt/hours (GW/h) a year.

But these statistics require a closer look. The European Union's Green Deal assumes that biomass obtained from forests is carbon neutral, since the CO_2 it releases into the atmosphere is recaptured by new forest growth. These assumptions have been challenged by Greenpeace and other environmental groups, who warn of the difference in time cycles of rapid fuel consumption and slow forest growth, the potential damage to wooded habitats, and a new-growth forest's reduced capacity to absorb carbon. In the United States, the Partnership for Policy Integrity has cited evidence that biomass fuel emits far more actual CO_2 than gas or coal per megawatt of energy produced.

These caveats are mitigated in the case of Spain, where the production of biomass stems from new programs that incentivize clearing the country's extensive forests of dead wood and excess underbrush, which increase the virulence of forest fires. Decades ago, before rural depopulation, this task fell to local farmers gathering firewood. At the same time, in other projects with the architects, DH EcoEnergías proposes to supplement biomass with geothermal and solar energy sources.

Rodriguez gives credit to López for seeing the value of architectural design in his energy plants. Trained as an engineer, he first worked with the architects as a sustainability consultant. Rodriguez sees their designs for DH EcoEnergías as an opportunity to reclaim "the architectonic nobility that industrial buildings had in the time of Peter Behrens." Spain has stood out in the recent past for its remarkable public architecture, from cultural centers and transportation hubs to public housing and urban design. As environmental concerns have become a pressing public priority, it is gratifying that this spirit continues to thrive in the design of something as down and dirty as a power plant. ■

A perimeter walkway allows observation of equipment (right). Translucent polycarbonate wraps the building (above).



Credits

ARCHITECT:
FRPO Rodriguez & Oriol

ASSOCIATE ARCHITECT:
Jesus Eguren

ENGINEER: Mecanismo Ingeniería (structural)

CONSULTANT: Walk (landscape)

GENERAL CONTRACTOR:
Ferrovial

CLIENT: DH EcoEnergías

SIZE: 21,100 square feet

COST: $1.7 million (construction)

COMPLETION DATE:
September 2022

Sources

CURTAIN WALL: Nummit (polycarbonate); Creavi (roofing)

SHENZHEN ENERGY RING | CHINA | SCHMIDT HAMMER LASSEN

Under the Big Top

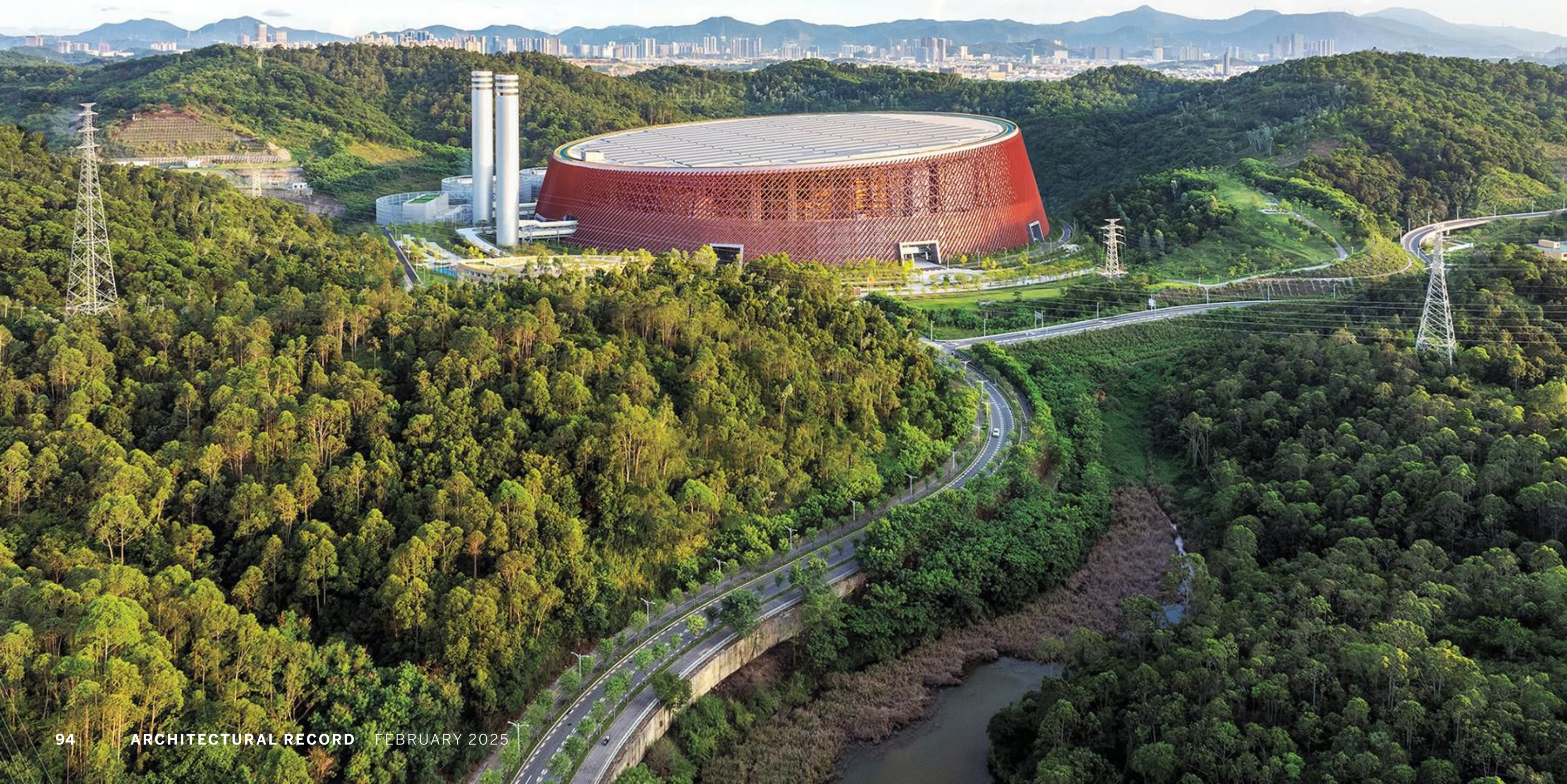
A permeable skin encircles a mammoth waste-to-energy plant.

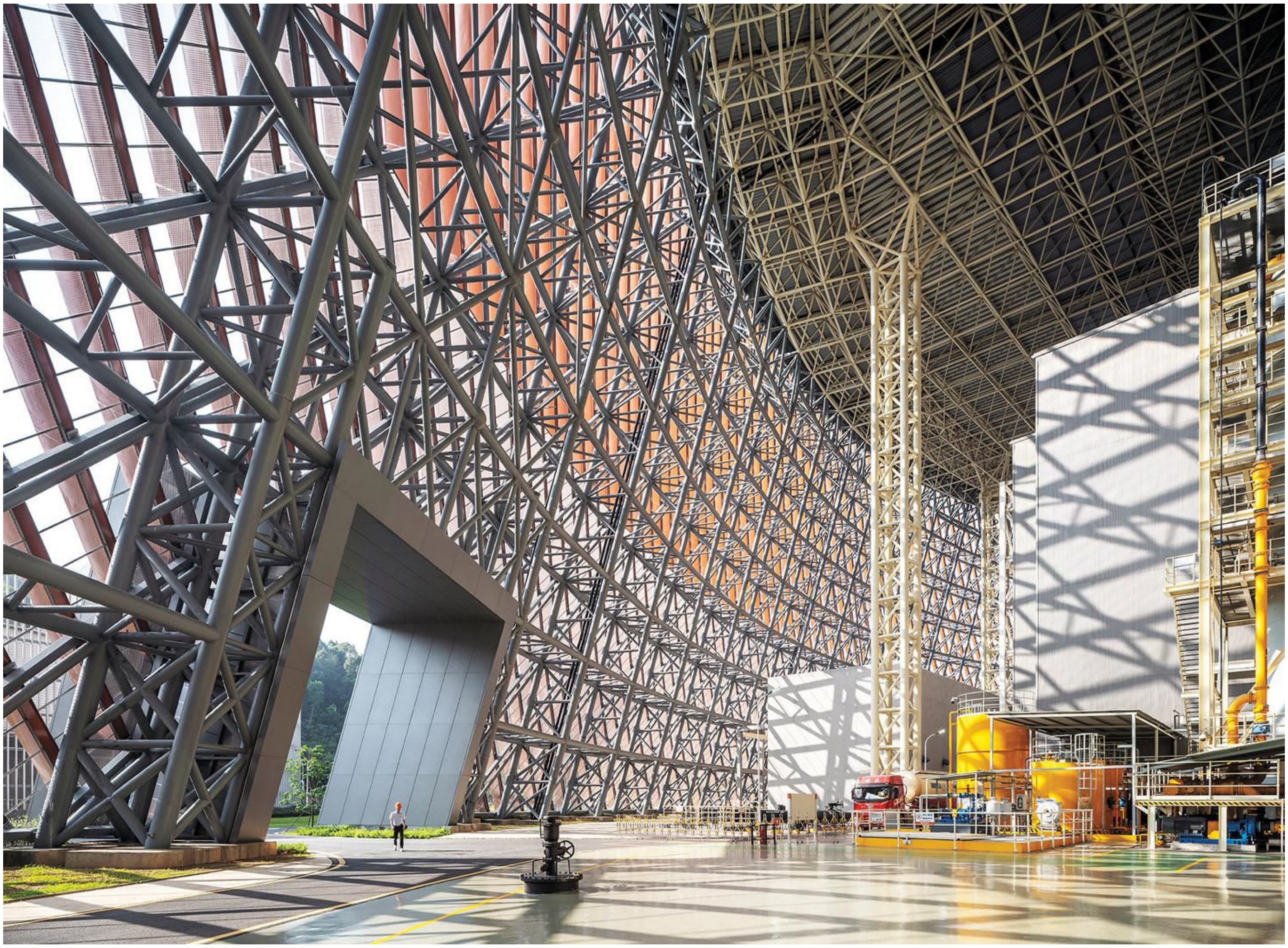
BY WANDA LAU
PHOTOGRAPHY BY TIAN FANGFANG

LIKE THE United States, China holds an unenviable position as a leading producer of trash, a fact that has not gone unnoticed by the Shenzhen Energy Environmental Company (SEE). The waste-management company has commissioned dozens of waste-to-energy (WtE) plants across China to put garbage to productive use.

The Energy Ring, in northeastern Shenzhen, takes a noticeable design departure from the boxy and stolid form typical of SEE's WtE plants. Schmidt Hammer Lassen (SHL), a part of Perkins&Will, collaborating architect Gottlieb Paludan, and architect of record East China Electrical Power Design Institute consolidated the project's industrial, administrative, and educational program into a tight, circular footprint on its verdant site 22 miles outside the city's center. "Why would we spread everything out, when we could make it small and reinstate the landscape around it?" says Chris Hardie, design director of SHL's Shanghai studio.

"Small" is relative here. The Energy Ring is one of the world's largest WtE plants, enclosing 2 million square feet within a tapering drumlike form approximately 1,150 feet in diameter and ranging from 150 to 215 feet tall. Since it began operations in late 2019, prior to its full completion of construction in 2023, the Energy Ring has converted a quarter of





Shenzhen's domestic waste into 1.2 billion kilowatt hours (kWh) of energy each year.

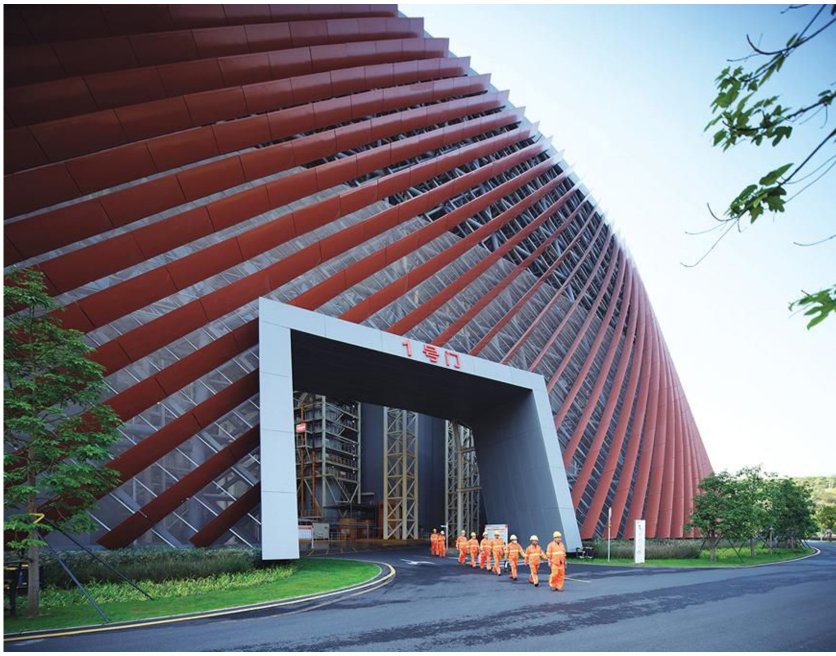
Though the architects sought to minimize site disturbance, they did not diminish the plant's presence. "You want it to stand out," Hardie says. "You want people to know their taxes are paying for tackling waste, a problem that they're creating." As such, the facility's permeable skin of steel lamellas is burnt orange, a vivid human-made mark amid rolling green hills.

Two 100-meter-tall (328-feet-tall) smokestacks flank an elevated visitor entrance into a multi-floor education and exhibition space. While workers monitor plant operations in a 48,200-square-foot office area, visitors can view key statistics, such as the plant's waste input and power output, on a dashboard.

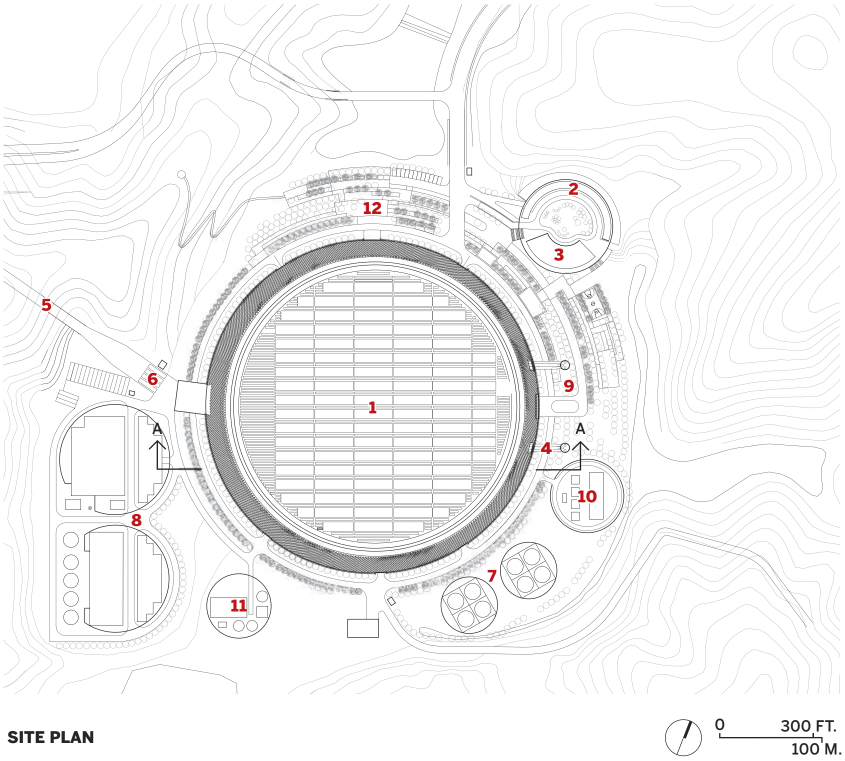
The remaining floor area is largely dedicated to its raison d'etre. The plant's WtE combustion system and boiler by Babcock & Wilcox come from Denmark, home to another distinctive WtE plant, Amager Bakke, in Copenhagen, by Bjarke Ingels Group.

A fleet of trucks collects waste from residents, who have already separated out recyclables, compostable waste, and oversize items. "In China, you can get

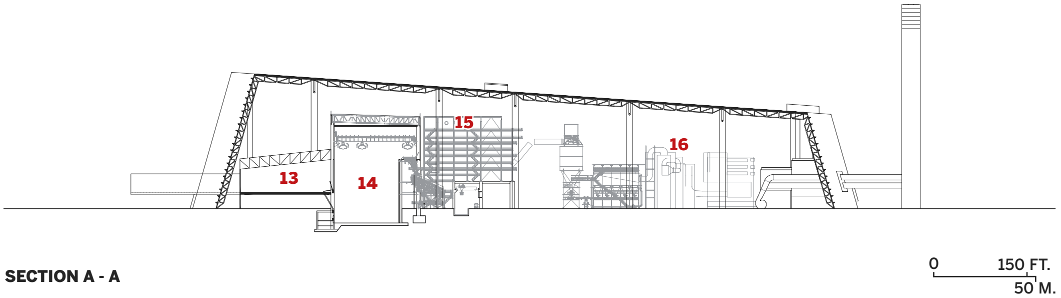
The drumlike waste-to-energy plant (opposite and above), 1,150 feet in diameter, is enclosed in a breathable skin of 8,215 steel lamellas (right).



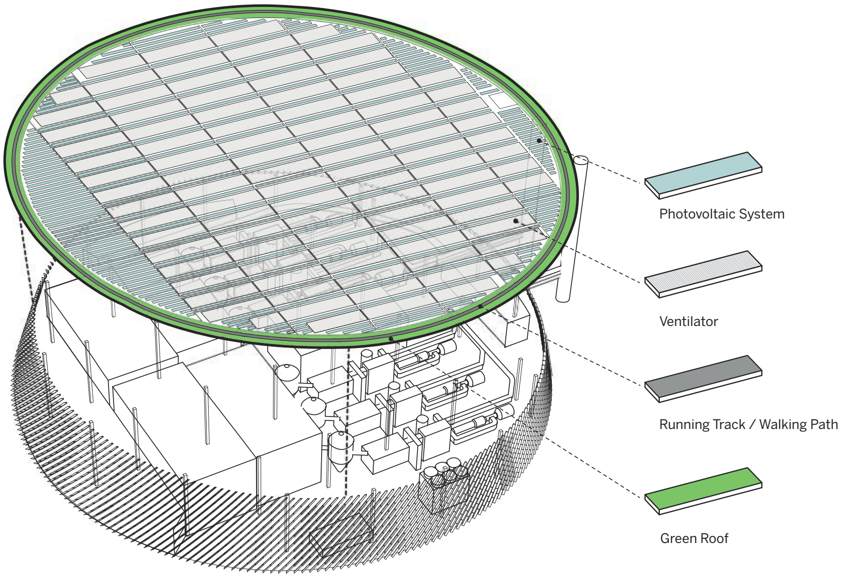
1 MAIN HALL
2 DORMS
3 CAFETERIA
4 STACKS
5 WASTE-TRANSPORT TUNNEL
6 WEIGH STATION
7 COOLING TOWERS
8 WASTEWATER TREATMENT
9 VISITOR ENTRANCE
10 BOOST STATION
11 GRAYWATER TREATMENT
12 GARDEN
13 WASTE-DISPOSAL HALL
14 WASTE BUNKER
15 BOILER
16 FLUE GAS TREATMENT



SITE PLAN



SECTION A - A



AXONOMETRIC DIAGRAM

fined if you don't do it right," Hardie says.

At the plant, the trash is deposited into hoppers and conveyed to a furnace with cranes. The heat of incinerating trash converts circulating water into high-pressure steam, which turns the blades of an enormous turbine generator. Ash from the combustion process and fly ash in the flue gas are captured, filtered for heavy metals and toxins, and taken off-site for processing; the inert slag can be upcycled into building materials, and the recovered metal recycled. Toxic gases—including nitrogen oxides and sulfur oxides—are also filtered, leaving only carbon dioxide and water vapor to exhaust from the twin smokestacks.

Every metric ton of waste incinerated produces about 1 metric ton of carbon dioxide, Hardie says. The Energy Ring processes about 5,000 metric tons of waste per day, producing the equivalent carbon emissions of 10 to 12 transatlantic one-way flights.

Converting waste to energy is not a solution, Hardie acknowledges, "but it's the best solution we have at the moment." Short of having a fully circular economy, Shenzhen would send its domestic trash to landfills, producing about 0.5 metric tons of methane for every ton of organic waste. Methane has a global-warming potential more than 80 times higher than carbon dioxide over a 20-year time frame.

The Energy Ring could be outfitted with carbon-capture technology in the future, Hardie says, but such an integration remains nascent.

The Energy Ring is one of the first industrial buildings in China to earn LEED Gold certification, according to SHL. Its compact footprint and ample landscaping promote China's "sponge city" initiative to make developed areas more flood-resistant through green infrastructure, says SHL project director Chao Chen. Its vast roof plane is covered with 193,750 square feet of photovoltaic panels, adding another 3.6 million kWh to the plant's annual energy output. A 1.1-kilometer running track ringing the roof perimeter offers recreational opportunities for workers and visitors.

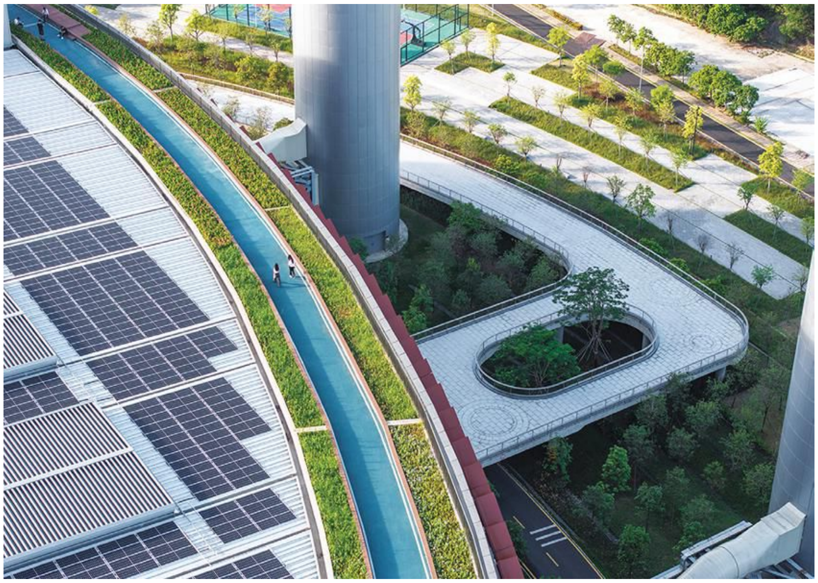
The absence of a solid envelope means tremendous savings in cladding material. WtE plants make far more energy than they consume as buildings, but many divert a portion to mechanically ventilate their industrial operations, Hardie says. The design team wondered, "Can we leave the facade open and let everything naturally vent?"

Like louver fins fixed ajar, the wraparound skin of 8,215 steel lamellas, each 10 to 13 feet long and triangular in section, is indeed breathable. A self-cleaning coating reduces maintenance needs, while an integral channel directs precipitation out. Expanded metal mesh wraps the lower 100 feet of the building, inboard of the lamellas, to keep out unwanted visitors and debris.

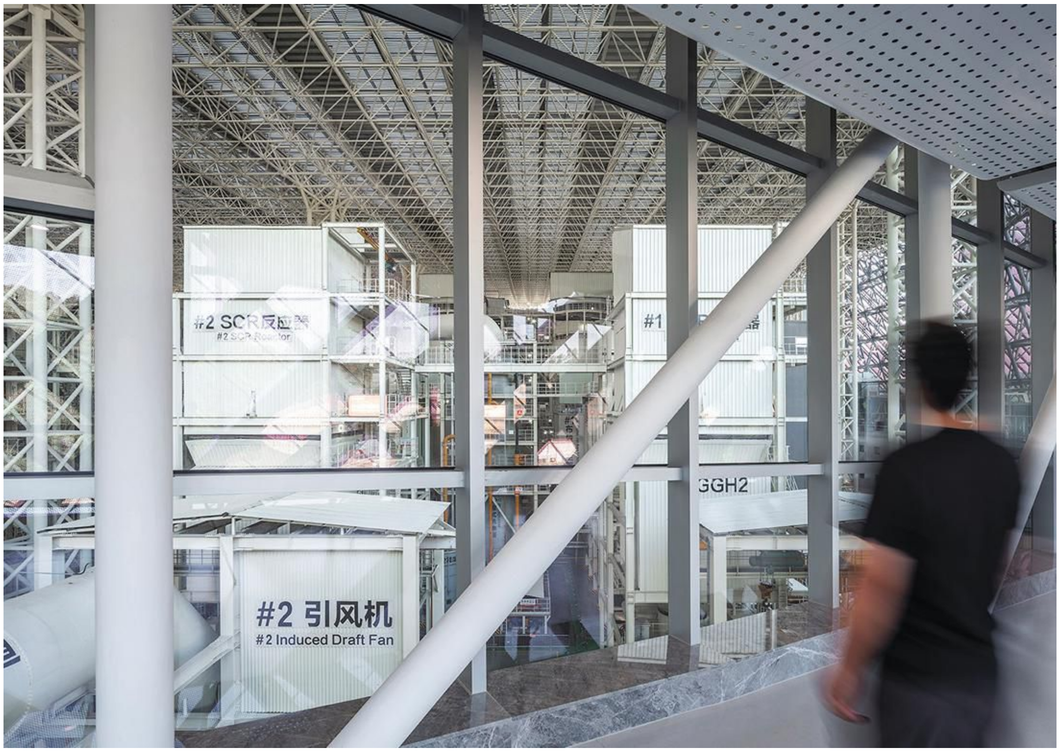
The bare-bones envelope supports the architects' second design intent, aside from education: avoiding obsolescence. Society is a long way from zero waste, but, when that day comes, Hardie imagines that the Energy Ring shell, emptied of its industrial plant equipment, could find new life as a stadium or entertainment district, akin to London's Millennium Dome.

Until then, the plant is educating students, researchers, and government leaders. Its efficient land use has enabled the addition of on-site visitor dormitories and a cafeteria for workers. Perhaps the strongest signal of public approval: the city of Shenzhen has recognized the Energy Ring as a top destination for industrial tourism. ■

Wanda Lau is an award-winning writer and editor who covers architecture and energy.



The vast roof is encircled by a running track and includes photovoltaics that add 3.6 million kWh to the plant's annual energy output (left). An education space (below) affords a view of the facility's operations.



Credits

ARCHITECT: Schmidt Hammer Lassen (Perkins&Will) — Chris Hardie, principal in charge; Chao Chen, project director; Steven Chen, Weijie Fu, Rasmus Duong-Grunnet, Tade Godbersen, Yu Jing, Tim Kunkel, Claudius Lange, Dong Liang, Rong Lu, Simon Persson, Xiao Sun, Michelle Tang, Gu Xiao, Ella Xu, Mo Yang, Tasha Ye-Feng, project team

COLLABORATING ARCHITECT: Gottlieb Paludan Architects

ARCHITECT OF RECORD: East China Electrical Power Design Institute

CONSULTANTS: Schlaich Bergermann Partner (structure); EAST Design, Shenzhen Landscape (landscape)

CONTRACTORS: China Energy Engineering Group Northeast No.1 Electric Construction Company, Power China Shanghai Power Construction No.2 Company

CLIENT: Shenzhen Energy Environmental Company

SIZE: 2 million square feet

COST: $0.6 billion

COMPLETION DATE: July 2023

Sources

FACADE LAMELLAS: Bluescope

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Photo courtesy of ASI

Design Trends in Commercial Washrooms and Locker Facilities

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CREDIT: 1 AIA LU/HSW; 0.1 ICC CEU; 1 IDCEC CEU/HSW; 1 ADA STATE ACCESSIBILITY/BARRIER-FREE

IN PM ACC

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ADA—Accessibility in Toilet Room Design

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IN LS ACC

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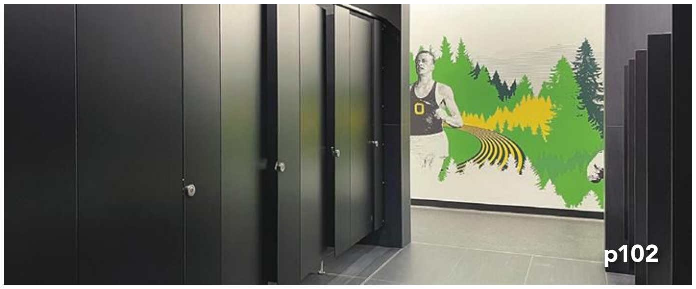

Designing Smarter Restrooms for Education

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Fully Integrated Healthcare Solutions: The Restroom and Beyond

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IN PM PE

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Heating Oil Conversion

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PM LS SI

CATEGORIES

ACC	ACCESSIBILITY	**PE**	PROFESSIONAL ETHICS	**SI**	SITE INFRASTRUCTURE DESIGN
IN	INTERIORS	**PM**	PRODUCTS AND MATERIALS		
LS	LIFE SAFETY AND CODES	**RR**	RENOVATION AND RESTORATION		

Courses may qualify for learning hours through most Canadian provincial architectural associations.

ASI just gave the locker room a makeover—you can too.

Photo courtesy of ASI

Design Trends in Commercial Washrooms and Locker Facilities

Creating inclusive, aesthetic, and functional spaces for commercial washrooms and locker facilities

Sponsored by ASI Group

Commercial washrooms, restrooms, toilet facilities, and locker rooms constitute a key interface between any business or building with the general public or occupants of the building. The personal experience one has in this very public space will no doubt shape the opinion of the user about how much a business owner, real estate developer, and designer of the building cares about their needs. Many people have legitimate phobias and concerns about using public restrooms, which could lead to physical consequences if not addressed. If thoughtful design can alleviate even some of those anxieties, it would make it easier for that person to navigate the built environment each day. This presentation will look at the importance of well-designed, aesthetically pleasing, holistic, and inclusive commercial washrooms, and provide important tips and considerations for effective design. The course will cover several topic areas important to users of public commercial facilities today.

Continues at ce.architecturalrecord.com

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1 AIA LU/HSW

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1 ADA STATE ACCESSIBILITY/BARRIER-FREE

Learning Objectives

After completing this course, you should be able to:

1. Discuss current commercial washroom, restroom, and locker room design trends.
2. Identify considerations for health and wellness, accessibility, sustainability, privacy and inclusion, aesthetics and usability.
3. Explain basic ADA regulations and accessibility strategies for toilet compartments, lavatories, and accessories that support the welfare and safety and ease of use for all users.
4. Identify different form and function trends and understand how they intersect with usability and comfort in commercial restrooms.

To receive AIA credit, you are required to read the entire article and pass the quiz. Visit **ce.architecturalrecord.com** for the complete text and to take the quiz for free.

AIA COURSE #K2501N

Welcome to ASI—the world's leading manufacturer of commercial partitions, washroom accessories, lockers, and visual display products. So what makes ASI so unique? Only ASI designs, engineers, and manufactures fully integrated solutions. So all of our products work together seamlessly. Welcome to choice, welcome to innovations, welcome to ASI.

While it is hard to assign a monetary value to great restrooms, they have a real, tangible effect on building occupants.

Photo courtesy of ASI

ADA—Accessibility in Toilet Room Design

Meeting ADA standards with smart and accessible restroom design

Sponsored by ASI Group

Millions of Americans live with impairments that substantially limit major life activities. The Americans with Disabilities Act (ADA) guarantees that people with disabilities have the same opportunities as everyone else to participate in mainstream living by mandating that public facilities and services be fully accessible to people with disabilities. This course examines the accessible elements of a multi-user toilet room. Discussed are toilet room compliance with applicable accessibility codes and regulations relating to access, use, maneuverability, and safety, and accessible design issues associated with toilet compartments and lavatory accessories.

Continues at ce.architecturalrecord.com

CONTINUING EDUCATION

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1 IDCEC CEU/HSW

1 ADA STATE ACCESSIBILITY/BARRIER-FREE

Learning Objectives

After completing this course, you should be able to:

1. Explain the challenges people with disabilities face when interacting with the built environment and using public washroom facilities.
2. Identify and address common accessibility issues related to toilet compartments and lavatory accessories and discover solutions to ensure these elements are usable by people of all abilities.
3. Determine ADA accessibility requirements, including access, maneuverability, and safety, and apply them to commercial toilet rooms.
4. Implement the design and maintenance plan of accessible toilet rooms, ensuring they meet the needs of individuals of all abilities.

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Project: Hayward Field
Location: Eugene, Oregon
Architect: SRG Partnership

Photo courtesy of ASI

Designing Smarter Restrooms for Education

Durable, hygienic, and inclusive restroom design for educational facilities

Sponsored by ASI Group

Educational facilities, while sharing some things in common with other building types, also have their own very specific needs when it comes to restroom and locker room design. Some elements, like durability as a result of heavy traffic loads, and antimicrobial and hygienic features to foster public health, are a constant. But as sensibilities and tastes change, other things like privacy, inclusivity, access, and aesthetics have become increasingly important. Restroom quality makes a major impression on building occupants, and in a competitive higher education marketplace, institutional impressions matter. This presentation will look at the importance of good, holistic, and inclusive washrooms for educational facilities and provide important tips and considerations for effective design.

Continues at ce.architecturalrecord.com

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PREFERRED EDUCATION PROVIDER 0.1 ICC CEU

IDCEC APPROVED 1 IDCEC CEU/HSW

1 ADA STATE ACCESSIBILITY/BARRIER-FREE

Learning Objectives

After completing this course, you should be able to:

1. Discuss important trends and requirements for education restroom design.
2. Identify considerations for privacy and inclusion, durability, hygiene, accessibility, sustainability, aesthetics, and usability. Explain basic ADA regulations and accessibility strategies for toilet compartments, lavatories, and accessories that support the welfare and safety of and ease of use for all users.
3. Discuss the importance of experience and comfort in education restrooms.

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Penn Medicine
PENN PRESBYTERIAN MEDICAL CENTER

Project: Penn Presbyterian Medical Center
Location: Philadelphia, Pennsylvania
Architect: Ewing Cole

Photo courtesy of ASI

Fully Integrated Healthcare Solutions: The Restroom and Beyond

Designing durable, clean, and inclusive healthcare restrooms

Sponsored by ASI Group

Healthcare facilities are complex and, in many ways, represent some of the biggest challenges for designers. Because of their occupancy nature, healthcare facilities must support public health and represent superior levels of performance and safety while also providing an attractive, welcoming environment. The high traffic typical in these facilities requires a great degree of durability, cleanability, and ease of maintenance.

Privacy, ease of use, accessibility, sustainability, and hygiene must be not only present but seen and understood by those in the building. Restroom quality makes a major impression on patients and staff. In a competitive healthcare marketplace, institutional impressions matter. This presentation will look at the importance of good, holistic, and inclusive public restrooms, patient bathrooms, and locker rooms for healthcare facilities and provide important tips and considerations for effective design.

▶ Continues at ce.architecturalrecord.com

CONTINUING EDUCATION

1 AIA LU/HSW
0.1 ICC CEU
1 IDCEC CEU/HSW
1 ADA STATE ACCESSIBILITY/BARRIER-FREE

Learning Objectives

After completing this course, you should be able to:

1. Discuss important trends and requirements for the design of restroom facilities in healthcare applications.
2. Identify considerations for hygiene, privacy and inclusion, durability, accessibility, aesthetics, usability, and sustainability.
3. Apply basic ADA regulations and accessibility strategies for public restrooms and patient bathrooms, noting that designing for patient use and safety often requires additional measures.
4. Explain the importance of safety, privacy, usability, and comfort in healthcare restrooms.

To receive AIA credit, you are required to read the entire article and pass the quiz. Visit **ce.architecturalrecord.com** for the complete text and to take the quiz for free.

AIA COURSE #K2501R

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Building homes with propane.

Photo courtesy of Propane Education & Research Council (PERC)

Heating Oil Conversion

Exploring propane as a viable alternative energy source

Sponsored by The Propane Education & Research Council

This course details economic and environmental reasons why switching from heating oil to propane is a good choice for homeowners, residential builders, or remodelers. Heating oil, also known as fuel oil or Number 2 oil, has been a popular choice for homeowners since the early 1900s. As an alternative to coal or wood as a fuel source for boilers and domestic hot water production, heating oil proved to be a reliable, clean, and economical choice for millions of consumers, especially in the Northeast and Mid-Atlantic where other fuel types were often more difficult to acquire or were more expensive. But it is not an environmentally conscious fuel choice. Propane gas has the same remote fuel benefit coupled with fewer emissions and higher efficiency equipment.

▶ Continues at ce.architecturalrecord.com

CONTINUING EDUCATION

1 AIA LU/HSW	0.1 ICC CEU
1 IIBEC CEH	1 GBCI CE HOUR

Learning Objectives

After completing this course, you should be able to:

1. Review the history and current use of heating oil in the United States.
2. Discuss which alternative fuel sources are available to current heating oil consumers.
3. Complete a heating analysis of alternative fuel energy choices.
4. Explain why propane is a superior alternative to heating oil and be able to explain considerations for converting from heating oil to another energy source.

To receive AIA credit, you are required to read the entire article and pass the quiz. Visit **ce.architecturalrecord.com** for the complete text and to take the quiz for free.

AIA COURSE #K2410X

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Chicago
February 7–April 27, 2025
The Driehaus Museum presents an exhibition exploring the cultural and ecological histories embedded in the materials of its site: the Gilded Age-era Samuel Nickerson Mansion. The museum invited contemporary artists—including Richard Hunt, Luftwerk, and Barbara Cooper—to engage in dialogue with specific materials from the building, uncovering hidden networks of trade, craft, and ideology that connect the building to global histories. Curated by Giovanni Aloi, the show examines how architectural materials actively shape cultural boundaries. See driehausmuseum.org.

Ongoing Exhibitions

Marc Brousse: Architekto(s)cene(s)
Brussels
Through March 1, 2025
Husk Gallery presents architect Marc Brousse's first solo exhibition; it explores the concept of an "Architektocene" era defined by humanity's global architectural footprint. Through detailed drawings on paper and objects, Brousse examines the intersection of built environments and natural landscapes, layering architectural strata to bridge scientific inquiry and artistic imagination. See huskgallery.com.

Distillation of Architecture: 家具
London
Through March 7, 2025
An exhibition at the Architectural Association School of Architecture reconsiders the relationship between furniture and architecture, pairing four Japanese architects with craftspeople to transform a piece of furniture or domestic structure. The resulting works demonstrate how architectural thinking and craftsmanship can create adaptive, compact solutions that challenge mass-production norms and promote sustainable living. See aschool.ac.uk.

Restless Architecture: Diller Scofidio + Renfro
Milan
Through March 16, 2025
MAXXI presents an exhibition, designed and curated by Diller Scofidio + Renfro, examining architecture from the 1930s to the present that adapts, reconfigures, and responds to changing conditions. Organized around four key principles—mobility, adaptability, operability, and ecodynamism—the show explores projects that challenge architecture's traditional static nature, including works by Hans Hollein, Kisho Kurokawa, Rem Koolhaas, and Archigram, in addition to the Zaha Hadid-designed museum itself. Conventional architectural models, drawings and photographs are supplemented with newly commissioned kinetic models, full-scale mock-ups, experimental prototypes, and video installations. For more information, see maxxi.art.

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Built to Adorn: Jewelry and the Architecture of D.C.
Washington, D.C.
Through April 24, 2025
The District Architecture Center presents an exhibition exploring the intersection of jewelry design and architectural landmarks in the nation's capital. From pieces created by prominent architects to works inspired by Mies van der Rohe's design principles, the show transforms the capitol's landmark buildings and signature architectural elements into wearable art. See dcarchcenter.org.

The Tuskegee Chapel: Paul Rudolph X Fry & Welch
New Haven, Connecticut
Through July 5, 2025
An exhibition at the Yale Architecture Gallery examines the collaborative creation of Tuskegee University's landmark chapel (1960–69), focusing on the crucial partnership between Paul Rudolph and Tuskegee faculty architects Louis Fry, Sr., and John Welch. Running parallel to the Rudolph retrospective at the Metropolitan Museum of Art, the show reveals how Fry & Welch translated Rudolph's sculptural vision into Tuskegee vernacular, continuing the university's legacy of masonry craftsmanship established by Booker T. Washington and Robert R. Taylor. On display are architectural models, construction drawings, and photography by Ezra Stoller and Chester Higgins, alongside new work by Tuskegee alumnus Myles Sampson. See architecture.yale.edu

Janna Ireland: Even by Proxy
Los Angeles
Through September 17, 2025
In honor of its centennial, Frank Lloyd Wright's Hollyhock House presents an exhibition by photographer Janna Ireland, the 2024 recipient of the Julius Shulman Institute Excellence in Photography Award. The 21 images on display introduce new perspectives on L.A.'s only UNESCO World Heritage Site, examining the complex relationship between Wright and client Aline Barnsdall, and ongoing preservation efforts. The commission builds on a rich photographic legacy for Hollyhock House, which includes work by Margrethe Mather, Edmund Teske, and Julius Shulman. See hollyhockhouse.org.

Events

International Mass Timber Conference 2025
Portland, Oregon
March 25–27, 2025
Convening for its ninth edition, the annual event brings together attendees from a range of industries and disciplines, including architecture, urban planning, construction, development, engineering, forestry, and manufacturing. A series of talks will be supplemented by tours, live demonstrations, and exhibitions. See masstimberconference.com.

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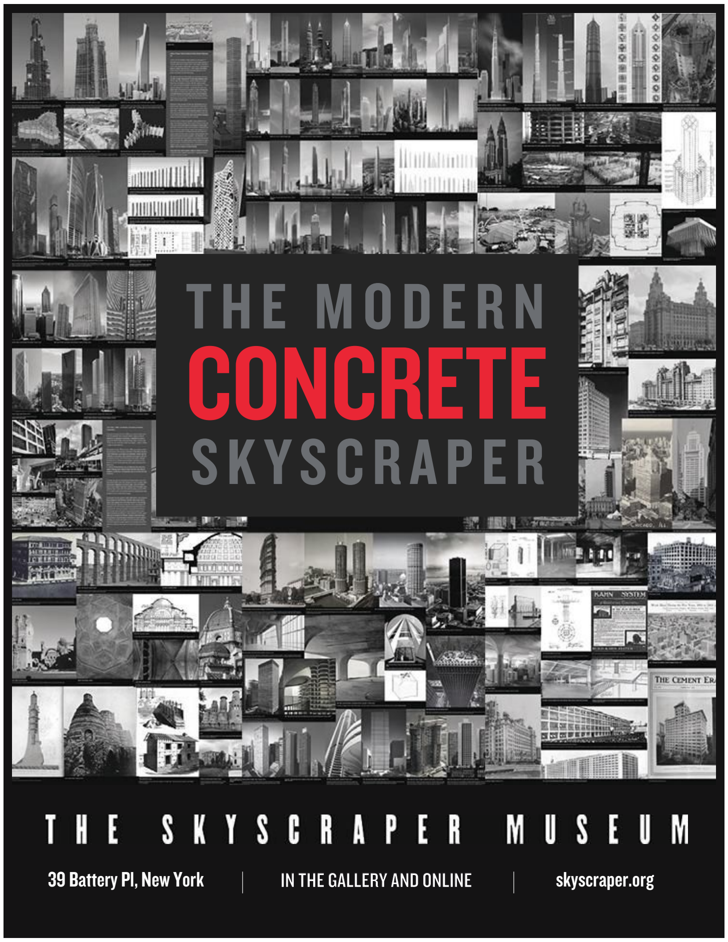
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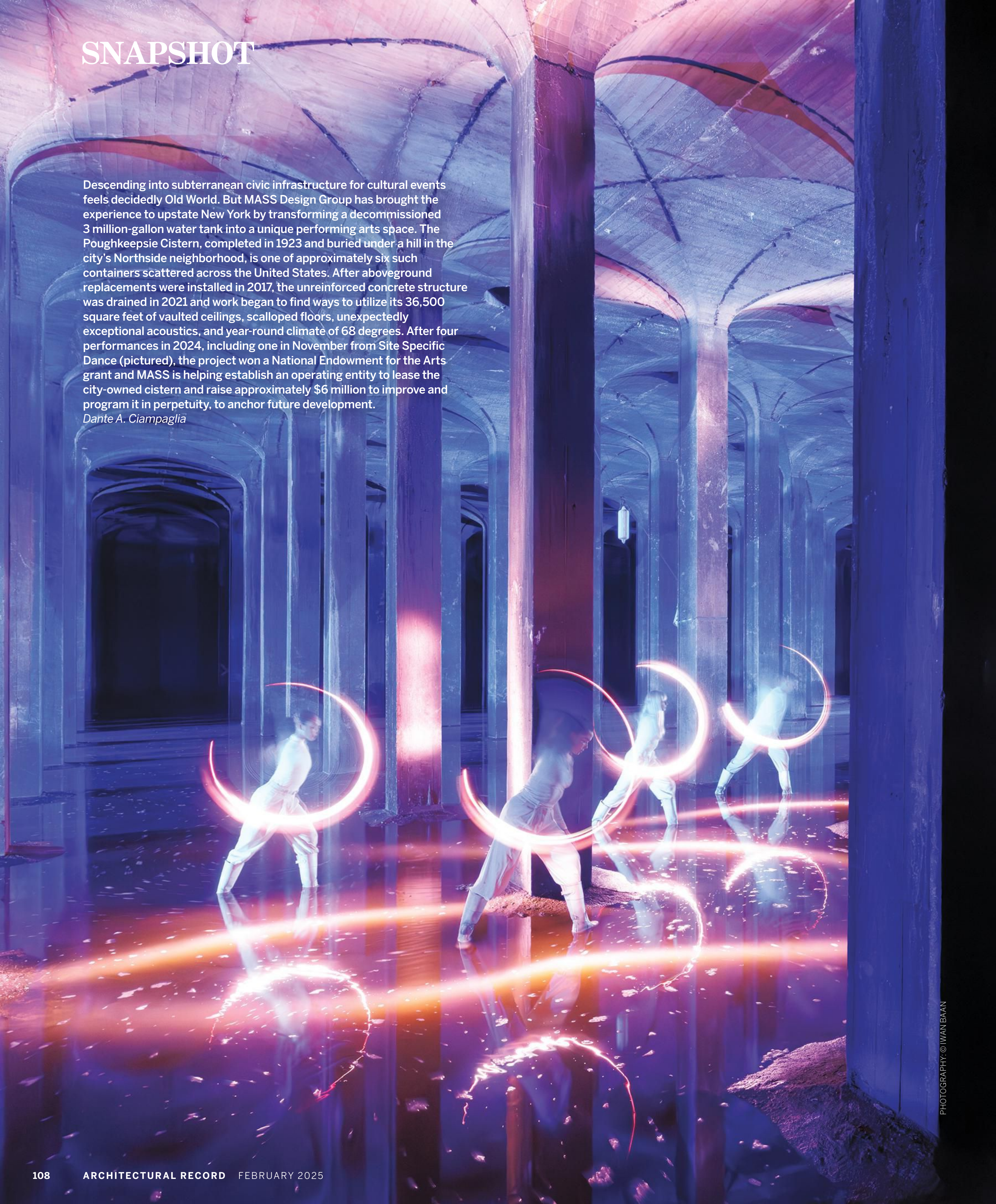

Descending into subterranean civic infrastructure for cultural events feels decidedly Old World. But MASS Design Group has brought the experience to upstate New York by transforming a decommissioned 3 million-gallon water tank into a unique performing arts space. The Poughkeepsie Cistern, completed in 1923 and buried under a hill in the city's Northside neighborhood, is one of approximately six such containers scattered across the United States. After aboveground replacements were installed in 2017, the unreinforced concrete structure was drained in 2021 and work began to find ways to utilize its 36,500 square feet of vaulted ceilings, scalloped floors, unexpectedly exceptional acoustics, and year-round climate of 68 degrees. After four performances in 2024, including one in November from Site Specific Dance (pictured), the project won a National Endowment for the Arts grant and MASS is helping establish an operating entity to lease the city-owned cistern and raise approximately $6 million to improve and program it in perpetuity, to anchor future development.
Dante A. Ciampaglia

PHOTOGRAPHY: © IWAN BAAN

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The DESIGN:ED Podcast by *Architectural Record* takes you inside the profession through informal conversations with the field's leading architects and designers. Tune in to hear inspiring stories from design leaders, posted twice a month.

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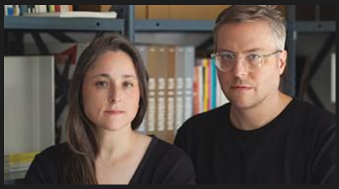
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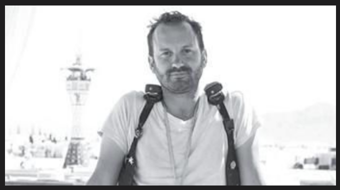
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